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SYMPOSIUM:

OTITIS MEDIA NON-SUPPURATIVA.

The Etiology and Diagnosis of Acute Non-Suppurative Otitis Media.

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The Treatment of Acute Non-Suppurative Otitis Media.

EDWIN PYNCHON, M.D., Chicago.

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WM. LINCOLN BALLENGER, M.D., Chicago.

The Treatment of Chronic Non-Suppurative Otitis Media.

M. A. GOLDSTEIN, M.D., St. Louis.

THE ETIOLOGY AND DIAGNOSIS OF ACUTE NON-SUPPURATIVE OTITIS MEDIA.*

BY WM. C. BANE, M. D., DENVER, COLO.

Barr, in his excellent work on Diseases of the Ear, considers acute non-purulent and acute non-perforative inflammation of the middle ear as synonymous. I do not so consider them. We have non-purulent inflammation that is perforative and again we have non-perforative cases that are purulent.

Why an otitis in one subject will be catarrhal and another purulent depends mainly upon two factors: First, the constitutional or blood state of the patient, and second, on the local exciting cause, including the micro-organisms.

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In acute non-suppurative or catarrhal otitis media, we find congestion, edema and excess of secretion of serum and mucus. There is more or less ex-foliation of the epithelium. The active changes may be largely confined to the mucous membrane lining the middle ear, not extending into the connective tissue of the attic. Again the congestion may extend throughout the attic and into the mastoid, and yet the active secretion be largely confined to that portion of the middle ear nearest the vibrating membrane.

Etiology. The season of the year plays an important part in the cause of otitis media. We observe that the cases are much more numerous during the after part of the winter and early spring months than the other months of the year. Manifestly this is due to the sudden and severe changes in the weather. It is doubtful if there is any material difference between a dry and a humid atmosphere as a causative factor, but we would naturally consider that the humid atmosphere is the more conducive to disease of the mucous membrane.

In the winter season the diet is richer and less easily digested than at other seasons. The digestive system being disordered or the diet unsuitable, there is likely to be an excess of secretion from the mucous membrane of the alimentary tract, as well as the pharyngeal membrane and glands. The general state of the system has much to do in the warding off or contracting of colds. Overheating of the body by exercise, followed by exposure to a draught, causing reabsorption of the perspiration is a very frequent cause of what is commonly called "a cold," that extends to the ears. Sea bathing without proper precautions, or the accidental conveyance of septic matter into the middle ear by the nasal douche may precipitate an attack of otitis media. Injury to the middle ear through the canal and membrana tympani may be the exciting cause of an acute otitis media that subsides without suppuration. The most common cause of otitis media is the extension of the inflammatory process in pharyngitis and rhinitis along the Eustachian tubes to the middle ear. The discharge in rhinitis is often forced through the Eustachian tubes into the middle ears by improper blowing of the nose, thus infecting the ears and exciting an otitis. Operations in the nose, as turbinectomies, are occasionally followed by otitis media. Adenoid growths in the vault of the pharynx are a fruitful cause of catarrhal otitis media. During the teething period children are liable to attacks of acute catarrhal otitis media that may become purulent. The acute otitis media occurring in the course of measles is frequently of the non-suppurative type. That of influenza may be catarrhal but

is more apt to be purulent. In typhoid fever the middle ears become involved in about 4% of the cases and may be catarrhal or purulent.

Diagnosis. Experience has taught us that the symptoms in the adult are as a rule less severe than in the child, and there is less constitutional disturbance. At first there is a feeling of fulness in the ear followed by pain. At the beginning the pain is slight and intermitting, gradually growing worse for a few hours, then remaining at a standstill or diminishing. The pain having commenced during the night may cease by morning, though the full feeling and dullness of hearing remain. The pain is increased upon lying down. Again the pain may be quite severe from the start and increase in severity until it becomes excruciating. After the stage of maximum secretion has been reached the pain diminishes, yet the dullness of hearing, accompanied at times with a heavy feeling in the side of the head, continues. Should rupture of the membrana tympani occur, marked relief of the pain and pressure or fulness follows immediately. The non-suppurative type not ending in rupture of the drum head, there remains the dullness of hearing and full feeling that may last from one to several weeks, and ere recovery takes place, there may be relapse into a more acute stage. During the act of swallowing or blowing of the nose the air entering the middle ear may produce a crackling sound from the air mixing with the serum or mucus in the ear. There is usually tinnitus that varies according to the pressure on the labyrinth.

In the adult the temperature is not likely to be elevated to any great extent, if at all, unless the disease spreads to the mastoid or attic. In children, however, the temperature not infrequently runs high. With the discharge of the serum or mucus, the temperature usually drops and if the child, the patient, becomes quiet and goes to sleep. The color and consistency of the discharge vary according to the stage of the inflammation. Early it is serous. After the second to the fourth day it is likely to be sero-mucus. In the mild cases the membrana tympani appears at first congested, especially in the flaccid portion and along the handle of the malleus.

In the severe cases the whole of membrane becomes congested, loses its brilliancy, and assumes a reddish gray color from the congestion and infiltration of the dermal layer. As the exudate increases in the middle ear the drum head is forced outward, frequently appearing as a ring about the umbo. The bulging may include both the vibrating and flaccid portions of the drum head, but when the flaccid portion is involved the case is most likely to be purulent. At first the congested drum head may appear somewhat retracted, due to the lack of air in the middle ear, and from early closure of the

Eustachian tube. This, however, may be but temporary. Again the drum head, while congested and subjective symptoms are those of exudation in the middle ear, it may not show any or vary slight bulging owing to the density of the membrane. Occasionally there will be observed vesicles on the drum head or the bony wall of the canal near the drum head filled with serum or blood. The distension of the vesicles causes a great deal of pain and discomfort. In myringitis the pain is located external to the middle ear and the hearing is much less interfered with than the otitis media with exudation. In the acute purulent otitis media, the pain is as a rule more severe and the constitutional disturbance greater than the catarrhal type.

The appearance of the drum head when the middle ear is partially filled with exudate may or may not convey to the experienced eye any definite information as to the character of the exudate. When only the vibrating portion of the drum head is bulging and is sufficiently translucent, the upper limit of the effusion may be seen and the color may possibly aid one in deciding whether the fluid is mucus or pus.

THE TREATMENT OF ACUTE NON-SUPPURATIVE OTITIS MEDIA.*

BY EDWIN PYNCHON, M. D., CHICAGO, ILL.

Professor of Rhino-Laryngology and Otology, Chicago Eye, Ear, Nose and Throat College.

Under the title given may be included the several acute inflammatory manifestations of the middle ear structures which have been described by various authors as respectfully: Acute myringitis, tubal salpingitis, acute catarrhal otitis, otitis media acute, etc., all being closely related, and in fact rapidly merging one into the other, so the chief consideration in treatment is as to stage or degree.

Owing to the frequency with which acute catarrhal otitis media occurs, particularly during child life, being usually described as "earache," and so often due to adenoids,¹ its prompt and correct treatment is of the greatest importance in order not only to relieve the annoying symptom of pain, but also in order to avoid those more serious sequela which may otherwise follow.

Certain patients are prone to attacks of acute ear trouble, while others are never thus afflicted. As all are alike subjected to practically the same exposures or climatic conditions, it becomes apparent that such susceptibility must, in a great measure, be due to local troubles present in those patients thus afflicted.

Chronic inflammation of the Schneiderian membrane, extending through continuity of tissue to the Eustachian tube, is an important etiological factor to be considered and, in a general way, defective nasal respiration associated therewith, whereby the nasal secretion, instead of being evaporated, is retained, so through deterioration it causes or intensifies the chronic inflammation alluded to. In the very young, enlarged tonsils and adenoids can be justly credited with being the almost invariable causes of the obstruction, which accounts for the defective nasal respiration, while in older patients intra-nasal hypertrophies, or intumescence from local or systemic causes, are often additionally present. Foreign bodies in the nose may be a cause of nasal occlusion or infection at any age, as well as traumatism, and particularly the use of powerful styptics, as Monsel's solution, upon intra-nasal tampons in order to control post-operative hemorrhage. Acute otitis media may also result from traumatism of, or inward extension of inflammation from the external

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auditory canal, or it may occur as an acute eruption of a chronic suppurative otitis media with perforated membrana tympani.²

Acute catarrhal otitis media has been, by different authors discussed conjointly with the acute suppurative condition. While the acute form of middle ear inflammation may, up to a certain stage, be regarded as "non-suppurative," it is a fact conceded by nearly all writers that pathogenic invasion into the middle ear is an ever present factor^{2,3} and that the degree of virulence from such invasion is tempered by the character or combination of varieties of organisms present^{4,5} as well as by both the amount of infective material introduced^{4,5} as well as by both the amount of infective material introduced and the resisting power of the patient. The natural collection of infective material about the tubal orifice is largely due to the structural formation of the post nasal space, as well as to the proximity of this orifice to Luschka's tonsil which, when either hypertrophied, or in that not infrequently observed condition of degenerative atrophy, becomes an ideal culture field for pathogenic organisms. Attention must also be called to the supra-tonsillar fossa, the infective material in which, beginning with early adult life, is in different ways a factor to be remembered. It has also been granted that defective teeth may have an important causative relationship.⁶

Owing to the short and more open Eustachian tube in child life the chance for ingress of pathogenic material, so freely available from the ever present adenoid growth, is increased, hence middle-ear trouble in young children may be generally regarded as suppurative, even though there may exist no rupture of the membrana tympani or external discharge, owing to the short and more patulous Eustachian tube, and in fact, after such infection, an unrecognized suppurative otitis may for months continue, the escaping and swallowed secretion from which is the cause of persistent gastric disturbance.^{1,7} In such case the pain is regarded as neuralgic and the recurrent febrile disturbance is too often accredited to "teething."

The causative factors have been thus cited as it is the duty of the attending physician, after the subsidence of an acute ear trouble, to advise as a prophylactic step the removal of all obstructive or contaminating tissues present in the upper air passages, and thereby correct the defective nasal respiration so as to avoid the tendency to recurrence of acute ear troubles.

In the development of an acute otitis media, there is first a brief stage of intra-tympanic rarefaction, owing to tubal stoppage, with the membrana tympani retracted, whereby, owing to negative pressure, serous or hemorrhagic exudate in the middle ear is induced,

which in turn, through imprisonment, soon causes pressure with a bulging drum head, and may be considered a second stage. As the secretion is retained, it becomes more viscid.

Among the symptoms of acute middle ear trouble, pain may be regarded as the most important, though it is not always present, and is more liable to be of brief duration in young children, owing to the shorter and relatively wider Eustachian tube, whereby an exit of the middle ear secretion is more readily secured than with adults. Subjective sounds and reduced hearing acuity with fullness of ear are promptly noted by adults, though rarely complained of by children. In adults autophonia is commonly reported, and vertigo occasionally, while delirium and convulsions are chiefly manifested in children. In all cases there is some febrile reaction, which in children may be quite pronounced, constituting the most important symptom. In fact fever when of sudden development, particularly in children, may at any time suggest ear trouble.²

Among the exciting causes the exanthemata and grippe are of the most importance from a numerical standpoint, though typhoid, acute nephritis and pneumonia must be mentioned. When grippe is the cause, there seems to be an increased danger of serious otitic infection. Another common exciting cause is the getting of water in the post nasal space while bathing, or from the improper use of a nasal douche, in which case the water entering the Eustachian tube carries in microorganisms from its entrance.³ In fact, any exposure which results in coryza may cause an acute ear trouble, particularly when vigorous sneezing occurs, or when the nose is too vigorously and incorrectly blown.

In acute catarrhal otitis the element of pain, in the first stage, is due to the forced process of exudation from sudden rarefaction, which explains how the escape of a very minute quantity of fluid after a paracentesis may give such prompt relief, while later, in the second stage, it is due to intra-tympanic pressure and bulging of the drum head from the imprisoned secretions, which are augmented by the inflammatory process. With this understanding, it becomes apparent how promptly resolution will follow if in the early stage the imprisoned secretion can be released, so air will be substituted for fluid in the tympanum. The natural process whereby a spontaneous cure often occurs is from absorption so, through subsidence of the swollen tubal mucous membrane, a vent is given to the imprisoned secretion, and incidentally an entrance for air.

The ideal treatment, therefore, in this condition, when possible to be employed, is the prompt and early use of the intra-tympanic air douche. Inflation for this purpose has been both praised^{8,14} and

condemned³ by different writers, though all appreciate the fact that a cure can be facilitated by the re-establishment of tympanic drainage and the restoration of atmospheric equilibrium. The question is, how may this be safely and readily accomplished? The tube being stopped, an increased pressure is required, particularly by the method of Politzer, in order to pass the obstruction, and in fact with the necessary pressure required in order to effect Politzerization, the fluid in the tympanum may be driven into the mastoid cells, or the drum-head ruptured. Furthermore, infective material from the tubal entrance may thus be driven through to the tympanum so the patient is subjected to both intense pain and the danger of further infection. With this view, it is not strange that many writers should decry the use of the air douche and should instead advise paracentesis whereby is imitated nature's alternate plan of termination when resolution fails.

The attempts at inflation which have been decried have, I believe, always been intermitting impacts, and when of enough power to pass the obstructed tube have often caused the undesirable phenomena previously cited. In acute intestinal obstruction, as from intussusception, intermitting douches, where the fluid is allowed each time to escape, have proved ineffective, and even harmful, while the constant stream, with intermitting halts, but no escape, has passed the obstruction and given relief.⁹

In a previous paper, presented before this association six years ago¹⁰, I described a method of inflation based upon the philosophy outlined in the preceding paragraph, it being a method whereby I have on several occasions successfully aborted an acute catarrhal otitis. As I have not since learned of others putting in practice the method described, I fear it failed to catch the eye, as well as the ear, of otologists generally.

The method alluded to, in brief, consists of the use of a constant in place of the intermitting air current, having at hand means for absolutely controlling and regulating the air pressure 10, and always employing a catheter, and using a vapor or nebula in place of plain air, for it must be a poor nebula indeed that is not better and more aseptic than unmedicated air.

The philosophy of this method is based upon the fact that as the vapor enters the tube it proceeds to the point of obstruction, and then retreats along the path of entrance, hence there is both a constant in-going and out-going current which *cleanses the tube of secretion*, particularly about the orifice. The continuous action of the air current is naturally most intense at the point of obstruction, so between its action, and the effect of the medicament employed, the obstruc-

tion is shortly passed, and the patient experiences a bubbling in the ear, which is also heard by the operator through the auscultation tube. I begin with about a 6-lb., pressure, and gradually increase it to even 15 lbs., or until an entrance is effected. In these acute conditions I have found a chloroform vapor to be most effective. After the obstruction is passed, I have the patient tilt the head so the affected ear is uppermost, and allow the constant stream, with occasional breaks, to enter the middle ear for possibly a minute or so. In the selection of a catheter, I prefer one of silver with a bulbous tip, and am particular that the distal opening shall, for a short distance, be reamed out and made conical or rounded, so as to have no angular edge, or in other words, so the opening will be rounded inwardly, as is the outer bulbous end rounded outwardly.

I have also a suggestion to make relative to the introduction of the catheter. The methods usually advised require the touching of the point of the catheter against the posterior pharyngeal wall, or else against the upper surface of the soft palate, either of which steps will often cause retching. My method is to introduce the catheter in the usual manner, but with a slight rotating pressure of the dependent point of the catheter against the septum, as it is gradually entered, until the posterior end of the septum is reached, when, owing to the rotating pressure, the curved end tips up to the horizontal, when the catheter point, by being rotated downwardly, or in the opposite direction about 180 degrees, will enter the Eustachian orifice. In the case of a sensitive nose, I precede the introduction of the catheter by a brief application of cocaine to the septum and tubal orifice.

If the first treatment is given in the forenoon, I advise a repetition in the afternoon, and again daily for the next day or two, though I have in several cases had a complete cessation of all pain after one treatment. For patent reasons, the treatment outlined can only be employed with patients who can visit the office, and with adults, or those resolute enough to permit the introduction of the catheter. In all other cases the treatment of election is the employment of heat. Tobacco smoke has often been blown in the external ear with benefit, though, with our modern office equipment, much better methods are available for the use of heated air. For the past two years I have been using a Seeley hot air apparatus, made by F. A. Hardy & Co., of Chicago, which I have found to be both efficient and convenient to use. Another device which I have found of particular value in effacing the lame feeling or soreness about the ear, which can be used during office treatments, is a mechanical masseur. I have for some time been using a cleverly constructed device of this

kind, operated by compressed air, being both small in size and of ample power, and made by the Globe Nebulizer Co., of Battle Creek, Mich.

Generally speaking, in the treatment of acute ear inflammations, hot aqueous douches are, for many reasons, to be preferred. For several years, in such cases, I have depended largely upon the frequent employment of a hot one per cent. carbolized douche, to be used at least every two hours, while during the interval dry heat is continuously applied with the aid of a Japanese hot box. In order that the douche will be properly used, I give the patient a printed sheet of directions, of which the following is a copy:

"DIRECTIONS FOR THE USE OF INJECTIONS IN THE EAR.

"Dissolve one teaspoonful of Carbolic Acid in a teacupful of hot water, and stir with a teaspoon until thoroughly mixed or dissolved. Then add enough warm water to make one (1) pint. It should when used, be as warm as can be comfortably borne by the ear. The best kind of a syringe to use is a Fountain Syringe, of not less than the No. 2 size, which holds one quart. Put in the bag the warm solution which has been prepared and hang the bag as high as the top of a door, so that when the patient is seated there will be a fall of about four (4) feet from the bag to the patient's ear, though the height of fall should be so adjusted as to never cause discomfort. If at all painful lower the bag.

"Use the smallest size of hard-rubber tip, which should be slightly introduced just within the opening of the ear, but must never be pressed in against the ear so hard as to cause pain or prevent the free escape of the injection into a bowl which should be held below the patient's ear.

"Use the entire pint in this way in one ear and, when required, use a similar quantity in the same way in the opposite ear. Repeat the injection 8 to 12 times daily as directed."

During the interval between office treatments in mild cases, and always in the more severe cases, it is best for the patient to be put to bed. Internal medication as indicated is to be administered, particularly the so-called vegetable arterial sedatives as aconite and gelsemium, which I find much better adapted to allay the febrile tendency than are the more modern coal tar antipyretics, though for the simple allaying of pain, antipyrin is valuable. The intestinal tract must be kept free and the diet regulated. Leeches in the past have been much used, though I believe the hot phenol douches are to be preferred. The application of cold, with the ice bag, I regard as of value only in the early stage of mastoid involvement. Cotton moist-

ened with a 10% solution of phenol in glycerin should, in the early stage, be loosely packed in the external canal and against the drum-head, from which benefit is derived through the process of osmosis.¹¹ Another agent which I sometimes apply in a similar manner upon cotton, which is both cooling and anodyne, is Baume Analgesique. Even in cases wherein the air douche has been successfully employed, I advise the use of heat, and the following of the other suggestions for treatment enumerated.

The desirability of cleansing and keeping clean, so far as possible, both the nasal passages and post nasal space is advised by all writers. For cleansing the tubal orifice, what could be more efficient than the air douche derived from the continuou air current used as described, being far more effective than can be the use of sprays, etc. Another method I employ for softening and removing tenaceous secretions in this locality is by the use of a long and delicate cotton applicator, bent like an Eustachian catheter, the end of which is liberally wrapped with cotton and moistened with some glycerin preparation. Personally I use Mxt. D. P. which contains about 75 per cent of glycerin, with six per cent each of soda and borax.¹² Proper blowing of the nose is another means whereby the advantage of air cleansing can be obtained, when nasal obstruction is not too pronounced, and must be done very gently, and at first only with both nostrils open, with the head bent well forward over a washbowl or sink while the patient is standing. After this the handkerchief can be used gently in the usual manner.

Lastly, if there is not a prompt subsidence of pain and other manifestations, paracentesis must be done, and the call for this step hinges largely upon the stage of the disease and upon the character and location of the intra-tympanic contents. In the more mild forms of infection, the retained secretion is a serous transudation in the atrium, while in the more virulent infections, which are considered suppurative, the tympanic vault becomes involved, and in fact, as soon as this location is known to be the field occupied, a free paracentesis should be done without delay.

I must add that after the drum head opening, whether by spontaneous rupture or by incision, I have failed to appreciate any disadvantage from the use of the hot carbolized douche, when used with the precautions specified on the printed sheet of directions, and when douches can be employed with sufficient frequency, I greatly prefer this method instead of the use of the so-called "dry treatment," until the discharge has practically ceased, when the latter method is admirable until the drum-head has healed.

Following a paracentesis, gentle suction with a Siegle pneumatic speculum employed once daily in the external meatus, in connection with other indicated treatment, including inflation, will facilitate rapid recovery, the patient meantime practicing auto-inflation by the Valsalvan method several times daily, and, after the first week, the use, for a few days, of pneumatic massage with a mechanical aural masseur¹³ will not only further facilitate the cure, but will also help to diminish or prevent the tendency toward impaired ossicular mobility, which so often follows acute inflammation of the middle ear.

BIBLIOGRAPHY.

- ¹ Halsted: *N. Y. Med. News*, Mar. 17, 1900.
- ² Dench: *N. Y. Med. News*, Jan. 17, 1903.
- ³ Pierce: *Journ. Am. Med. Assn.*, Dec. 19, 1896.
- ⁴ Phillips: *N. Y. Med. News*, Jan. 17, 1903.
- ⁵ Chambers: *Journ. Am. Med. Assn.*, Dec. 1, 1900.
- ⁶ Pomeroy: "Diseases of the Ear," N. Y., 1886; p. 145.
- ⁷ Burnett: *Pennsylvania Med. Journ.*, May, 1900.
- ⁸ Politzer: *Phil. and N. Y.*, 1903; pp. 266 and 338.
- ⁹ Mathews: *Quarterly Journal*, Jan. 1897; p. 21.
- ¹⁰ Pynchon: *Annals O. R. and L.*, May, 1898, and *THE LARYNGOSCOPE*, Nov., 1898.
- ¹¹ Andrews: *Med. Standard*, December, 1898.
- ¹² Pynchon: *Med. Summary*, Oct., Nov. and Dec., 1901.
- ¹³ Pynchon: *THE LARYNGOSCOPE*, May, 1902.
- ¹⁴ Miller: "American Text-Book of Diseases of the Eye, Ear, Nose and Throat," Philadelphia; 1899, p. 721.

Columbus Memorial Building.

THE DIAGNOSIS AND DIFFERENTIATION OF CHRONIC NON-SUPPURATIVE OTITIS MEDIA.*

BY WM. LINCOLN BALLENGER, M. D., CHICAGO, ILL.

Professor of Otolaryngology, College of Physicians and Surgeons, The Department of Medicine
of the University of Illinois.

In response to the request of the Committee on Program, I have the honor of discussing the diagnosis and differentiation of the several types of non-suppurative diseases of the middle ear, about which much confusion exists among otologists. There is greater confusion in this than in European countries, especially in Germany and Switzerland, as it is through the observations of a few of their indefatigable workers, that we are made acquainted with some of the finer distinctions between the various types of non-suppurative middle ear diseases. It is therefore on account of the prevailing misconception of the points bearing upon the differential diagnosis that I shall attempt within the brief time allotted to me, to present the status of the subject as I understand it.

It will simplify the discussion if we agree that spongifying or rarifying osteitis of the bony capsule of the labyrinth in its uncomplicated form, is a disease of the sound conduction apparatus, rather than of the sound perception apparatus. The word labyrinth would seem to imply that the lesion is of the labyrinthian contents, or sound perception apparatus. It is partly on this account that so much confusion exists in reference to the clinical diagnosis. While the lesion is chiefly in the bony capsule of the labyrinth, it in no way affects the termination of the auditory nerve. It is only in complicated cases that the acoustic nerve-apparatus is involved. As this symposium is restricted to the affections of the middle ear or conduction apparatus, the labyrinthian complication should be considered as incidental to the main theme under discussion. The conduction apparatus embraces all the parts of the ear external to the labyrinthian contents. The oval window and the foot plate of the stapes and fibrous membrane surrounding it are, therefore, parts of the conduction apparatus. Rarifying ostitis is chiefly confined to the bony tissue in the region of the oval window, and interferes with the vibrations of the foot plate of the stapes and the membranous ring of the oval window. Some of the subjective symptoms, therefore, are similar to those produced by lesions in other portions of the middle ear. It should be stated, however, that the contents

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of the labyrinth or perception apparatus are also sometimes involved in the extension of the osteitic process. In such cases, the usual clinical phenomena of labyrinthian disease are present. As spongifying of the bony capsule of the labyrinth does not usually impair the vital parts of the cochlea, the disease is properly classified under middle ear affections. We will, therefore, so classify it, and consider it in the differentiation of the non-suppurative forms of otitis media.

For the purposes of this discussion, the diseases of the ear of a non-suppurative type are classified under three headings, namely:

- a. Moist or secreting otitis media.
- b. Adhesive otitis media.
- c. Spongifying, or rarifying osteitis of the bony capsule of the labyrinth.

Spongifying is also described under various other titles as capsulitis labyrinthæ, oto-sclerosis, etc. Personally, I prefer the terms spongifying and rarifying osteitis of the bony capsule of the labyrinth, as they seem to more nearly describe the affection. Spongifying is a descriptive term which suggests the gross microscopical appearance of the change in the tissue, while rarifying osteitis is the most probable pathological description of the disease, although this is still under discussion.

That there can be still further subdivisions of non-suppurative middle ear diseases there is no doubt. For instance the secretive type can be split into the chronic congestive otitis media, chronic hypertrophic otitis media, etc. It is safer, however, in the present state of our knowledge, to limit the classification to the three headings already given.

THE DIFFERENTIATION.

The *appearance of the drum-head* in the *moist or secreting* variety of non-suppurative ear disease is usually in such marked contrast to either the adhesive or spongifying varieties, that it is only necessary to mention some of the more prominent distinctions to make it clear that the differentiation in this respect, at least, is usually quite easy. The presence of fluid within the middle ear cavity gives to the drum-head certain characteristic features that are demonstrable by inspection, inflation, movements of the head and paracentesis. Upon inspection, the upper limit of the accumulated secretion is marked by a white or grayish line, more or less irregular in outline according to the contour of the face of the drum-head and the consistency of the fluid. If the drum-head is thin and transparent, the fluid below the line of reflex light appears as a yellowish or grayish mass.

Inflation is attended by moist, bubbling rales, and by the formation of globules of air, which may be seen through the transparent membrane to slowly rise to the surface of the fluid. Movements of the head are attended by a sense of crawling or tickling in the middle ear, on account of the slowly shifting position of the contained secretion. In those cases in which the drum-head is rendered opaque by infiltration or other pathologic process, we are not aided by the appearance of the drum-head, but must depend upon the moist, bubbling rales, as heard through the auscultation tube during inflation, or upon paracentesis and the use of Siegle's otoscope. If after paracentesis and suction through the otoscope a serous or viscid secretion is drawn into the external auditory canal, the diagnosis is clearly catarrhal otitis media.

The appearance of the drum-head in adhesive otitis media is quite different from the foregoing description. The lines of reflex light marking the upper limit of the secretion are absent for obvious reasons, and the bubbles of air do not appear after inflation. The characteristic appearance of the drum-head in this type of the disease is due to the formation of fibrous bands and adhesions, which either directly involve the ossicles, the drum-head, and the other walls of the tympanic cavity, and may be seen through the transparent membrana tympani. If the disease is but slightly advanced, small, fine striae may be seen to cross its surface. Sometimes they are radiating in direction, but according to my observation, they are more often irregular in their outline. In the more advanced cases, the fibrous bands are larger and often retract the drum-head irregularly inwards. The bands are often quite resilient and stretch if suction is exerted through Siegle's otoscope, thus causing the observer to mistrust his first conclusions as to the presence of the fibrous adhesions. In the more advanced cases the adhesive bands do not stretch upon suction through the otoscope, but hold the adherent portion of the drum-head in a retracted position, while the remainder bulges outward. In still other cases, the drum-head is directly adherent to the inner wall of the middle ear, and presents a reddish or grayish appearance at the site of the adhesion. In these cases, inflation is attended by a balloon-like expansion, especially in the post-superior and the antero-inferior quadrants, where the membrane is unattached and is ample in area. It often happens that the adhesive process is confined chiefly to the marginal portion of the drum-head and to the contiguous walls of the tympanic cavity. In these cases, the drum-head presents a drawn or puckered appearance at its periphery.

In nearly all cases of adhesive formations in the middle ear, the position of the malleus is changed. It is retracted and rotated upon

its axis, thus presenting a fore-shortened and broadened aspect. The broader appearance is explained by the wider surface of the rotated malleus being turned toward the observer's eye. The short process and posterior fold are more prominent than normal for obvious reasons.

The drum-head presents a mottled or diffused ground glass appearance, especially behind the handle of the malleus, where it usually assumes a crescentic shape. The ground glass opacity is also sometimes located in the margin of the drum-head, and in still others the entire drum-head presents this appearance.

The cone of light is but slightly changed in many cases while in others it is somewhat narrow and irregular. It is rarely absent in its entirety. The adhesive bands and the prominent folds are marked by bands of reflex light.

If the membrana flaccida is adherent to the neck of the malleus, there is a deep pocket in this region. In general it may be said that the adhesive bands and points of adhesion are chalky or whitish in appearance, though in some cases they are red, while the intervening membrane is bluish or gray in color.

Inflation is usually attended by the normal soft blowing murmur, in contrast to the soft, bubbling rale found in the secreting form of otitis media. If the drum-head is inspected during inflation, only portions of it will be observed to bulge, often giving the appearance of a globular or an irregular bulging mass. If the handle near the umbo is adherent to the promontory, the anterior and posterior portions of the drum-head may protrude so much after the inflation as to conceal it from view.

The appearance of the drum-head in *uncomplicated spongifying* or rarifying osteitis is usually normal. It has been pointed out by Schwartz that there is sometimes a reddish or yellowish lustre behind the umbo.

The drum-head in spongifying does not, however, always present a normal appearance, especially in elderly people, and in those cases complicated by the adhesive type of otitis media. In these cases the diagnosis is rendered difficult. Indeed, there are no means at our command whereby we can in all cases make a differential diagnosis. That is, we can never be quite certain that the case is one of spongifying when the adhesive process is present in the middle ear. Unfortunately the number of post mortem examinations of cases with clear clinical histories with which to check them, have been so few in number as to leave the complicated or admixed cases in great obscurity, or, at least, in the field of empirical differential diagnosis. There remains a ray of hope, however, in the character of the tinnitus usually present in spongifying. Here the subjective noises

are more continuous and harassing. Even in cases with continuous harassing tinnitus, in which there are the visual evidences of adhesive processes in the middle ear, we cannot be quite sure that spongifying is also present, as tinnitus of this character is sometimes present in simple adhesive inflammation, especially if the foot-plate of the stapes is ankylosed. Any condition which causes fixation of the foot-plate of the stapes may be attended by continuous harassing tinnitus. This sign is, therefore, only presumptive and not conclusive evidence of spongifying. If, however, there is bewilderment and depression, together with continuous and annoying tinnitus, the presumption in favor of spongifying is strengthened.

The degree of deafness is rarely of value in determining the differential diagnosis, as it varies greatly in all forms of middle ear disease. It is less profound than the secreting variety, and may vary from slight to profound deafness in the adhesive and spongifying types. Profound or complete deafness is more common in spongifying. Deafness for speech is usually more pronounced than it is for music, except in those cases in which the labyrinth is also involved, and in these cases the hearing for music is lost.

Paracusis Willisii also fails to give positive information. It is rarely present in the secreting variety, rather common in adhesive otitis, and still more common in spongifying.

The functional tests of hearing afford some information as to the nature and location of the lesion, but a positive diagnosis cannot be made by their aid, except when taken in connection with all the other clinical phenomena. That is, cases of spongifying, complicated by adhesive otitis media cannot be differentiated clearly by the functional tests of hearing. If, however, the Eustachian tube is patulous and the drum-head is normal in appearance and the functional tests of hearing show a loss of hearing for tones of the lower register, a negative Rinne, and a prolonged hearing by bone conduction for the A fork, with but little loss of hearing for the tones of the upper register, the diagnosis of spongifying or rarifying osteitis of the bony capsule may be made with reasonable certainty.

In conclusion, it should be said that the question of the differential diagnosis of the chronic forms of non-suppurative otitis media will be comparatively easy in most cases if the following points are carefully considered during the examination of patients.

1. Bear in mind that in the present state of our knowledge of middle ear diseases there should be but three clinical subdivisions, namely:

- a. The moist or secreting type of otitis media.
- b. The adhesive or sclerotic otitis media.
- c. Spongifying or rarifying osteitis of the bony capsule of the labyrinth.

2. Spongifying or rarifying osteitis of the bony capsule of the labyrinth is, essentially, a disease of the sound conduction apparatus, and should therefore, for purposes of clinical study, be classified with the middle ear diseases.

3. In uncomplicated cases of spongifying there are no objective signs of middle ear diseases. The drum-head is normal in appearance and the Eustachian tube is open. The functional tests of hearing give in a general way the same results as are obtained in other diseases of the conduction apparatus. In other words, the Eustachian tube and middle ear seem, upon an objective examination to be normal, while the functional tests show all the classical signs of what we were formerly pleased to call middle ear diseases. When, therefore, the objective signs of middle ear and Eustachian disease are absent and the functional examination with the forks and whistles show the conduction apparatus to be affected, it is a fair presumption that the case is one of spongifying or rarifying osteitis. The question of the differential diagnosis may be stated in still another way, namely:

When there is no apparent middle ear disease and the functional tests of hearing lead to the opposite conclusion, the case is one of spongifying. The functional tests usually give the following combination:

- a. Loss of hearing for the tones of the lower register.
- b. Increased hearing by bone conduction for fork A.
- c. Negative Rinne.

4. The moist or secreting type of otitis media may readily be diagnosed by the presence of the serous or sero-mucous fluid as seen through the lustrous drum-head, or as shown by auscultation and paracentesis. The functional examination gives about the same results as given under spongifying.

5. Adhesive otitis media may be diagnosed by the appearance of the fibrous bands through the thin, lustreless ground-glass drum-head, together with the calcareous deposits, irregular retraction of the drum-head, and the slight or transient improvement of hearing after inflation. The functional tests give about the same results as given under spongifying except in those cases in which the adhesive (sclerotic) process has extended to the contents of the labyrinth.

As a final word, I will say that the moist and adhesive types of otitis present characteristic changes in the drum-head, whereas, in simple spongifying, the drum-head is normal in appearance. The functional tests of hearing give approximately the same results in all three types of otitis, although in spongifying, the hearing by bone conduction, as shown by Fork A by Schwabach's method if often much prolonged.

THE TREATMENT OF CHRONIC NON-SUPPURATIVE OTITIS MEDIA.*

BY M. A. GOLDSTEIN, M. D., ST. LOUIS, MO.

Professor of Otolaryngology, St. Louis University.

In order that a comprehensive outline in the therapy of chronic non-suppurative otitis media may be presented, an empirical subdivision of its stages and development may be offered as follows:

- I. *The Early Stages of Hypertrophic Catarrhal Otitis Media.*
- II. *Advanced Stages of Hypertrophic Catarrhal Otitis Media.*
- III. *Sclerosis and Rarefaction of the Bony Capsule of the Labyrinth.*

This arbitrary grouping affords us a means of considering measures for relief in the order of their importance and effectiveness. In this most common and intractable form of deafness, it is well to state that the earlier in the stage of the affection treatment is begun, the more prompt and effective will be the results. Much depends on a very careful diagnosis and differentiation of the form and stage of the disease in order that properly selected treatment may be conducted. It is not sufficient simply to establish the fact that the patient has a chronic middle ear catarrh, but to consider every factor which may contribute pathologically and mechanically to the affection. Thus for example, it would be useless to employ repeated Politization of an affected ear if there was complete occlusion of the Eustachian tube, either of its pharyngeal orifice or at the isthmus tube; it would be also contra-indicated to continue any line of treatment whether inflation, catheterization, intra-tympanic injection, the use of the bougie and the several forms of massage, if it can be distinctly demonstrated that frequent application of such treatment aggravates the case by increasing the deafness, intensifying the tinnitus and accentuating the vertigo. Each case therefore after careful examination, must have its course of treatment planned to best cope with the factors responsible for the affection.

1. *Early Stages of Hypertrophic Catarrhal Otitis Media.* As the nose and naso-pharynx constitute the basis in the pathology of this form of chronic catarrhal otitis media, our most careful attention should be given to the treatment of this area. The engorged, turgescient, and later, hypertrophied mucosa of this tract, is intimately associated with similar manifestations in the mucosa of the

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tympanic cavity and Eustachian tube. When this turgescence is sufficiently marked to materially diminish or entirely obstruct the lumen of the tubal canal, marked retraction of the membrana tympani ensues. If this retraction continues, and a plastic exudate is thrown out from the engorged mucosa, the foundation for the formation of adhesions and ossicular ankylosis is laid.

Our first step therefore is to treat the turgescient mucosa. For this, no remedy at our command has proven as effective as adrenalin. Even though the contraction of tissue by the use of adrenalin chloride is temporary, it gives us the necessary opportunity to thoroughly inflate the middle ear, and the increase in the calibre of the tubal canal allows the exudate in the cavum tympanum to thoroughly drain. A recent retraction of the membrana tympani will usually yield to a few inflations of the tympanum either by Politzer bag or catheter. In each instance where inflation is used, the membrana tympani should be carefully inspected at every sitting, before and after inflation, and each change in the hearing distance of the affected ear and the plane of the membrana tympani carefully noted. When exudation is profuse in the tympanic cavity and is not readily drained in this simple way, incision of the membrana tympani may be required. The alkaline nasal spray and saline post nasal irrigation are sometimes effective in toning down the turgescient mucosa. I discourage the use of the nasal douche not only by the patient, but by the physician because of the possibility of unintentionally forcing the washing fluids and mucus into the tubal tract. Astringent applications are often of value in preventing recurrence of turgescence. Silver nitrate (forty grs. to the ounce) applied by cotton applicator through the nose to the naso-pharyngeal mouth of the Eustachian tube, often has a beneficial effect. Recently, silver salts which are less irritating and of better penetrating qualities, have been well indorsed as a substitute for the more irritating silver nitrate. Of these I have used protargol in from ten to twenty per cent watery solutions with good effect. The nebulizers and vapor treatment have their enthusiastic advocates. These vapors are used in connection either with the Politzer bag, catheter or mechanical vibrator, and the mucosa of the middle ear tract is thus brought in contact with the nebulized medicament. Campho-menthol, so long and favorably mentioned by Bishop, is generally used in five to ten per cent solution, in hydrocarbon oil. I have always been an enthusiastic advocate of the hot unguentum petrolatum spray, used in this class of cases with a five per cent campho-menthol solution, and rendered slightly astringent by a drop or two of *Ol. rosæ gerani*. My usual treatment therefore, consists:

(a) Applying a solution of adrenalin chloride (1-1000) by means of cotton applicator.

(b) Inflating Eustachian tube and tympanic cavity by Politzer bag, catheter or nebulizer.

(c) Swabbing the pharyngeal orifice of Eustachian tube and the turgescient mucosa of the nasal tract daily or on alternate days, with an aqueous five to ten per cent solution of protargol.

(d) Spraying the nasal cavity anteriorly and post-nasally with hot campho-menthol vaseline.

(e) To facilitate absorption of exudate in the tympanic cavity, and to restore the membrana tympani to its normal plane, I use aural massage of very mild character, and preferably by hand masseur.

Massage in this class of cases should not be continuous in character, but should be of about one-half minute in duration and should consist mechanically of gentle suction to aid the newly aerated tympanic cavity, to restore the membrana tympani to its normal plane. The long continued massage with rapid stroke of piston and frequent congestion of cavum tympanum is here contraindicated.

When this middle ear process is associated with a more advanced nasal pathology, and when hypertrophied turbinates interfere either with proper nasal respiration or with aeration of the Eustachian canal, surgical intervention is called for. Septal deflections or projections and neoplasms obstructing the nasal passages, hypertrophied faucial or pharyngeal tonsils should all receive proper attention and should be removed early in the course of the treatment.

As diathesis is often an important factor in the etiology of chronic catarrhal otitis media, the general condition of the patient should be given careful consideration. Rheumatism, syphilis, tuberculosis, whether acquired or hereditary, have a frequent bearing on these cases, and tonics, alteratives or other systemic medications are often indicated. It may be necessary to advise change of employment for these patients, as certain occupations especially predispose to the development of these catarrhal affections. This is very marked among railroad employes and artisans who work in irritating atmospheres, such as millers, sawyers, grinders, etc. It is also interesting to note another class among who may be mentioned, bakers, moulders, stokers, etc., whose nasal and aural mucosa is affected by sudden thermal changes.

I have mentioned some of these data not because they form a part of the systematic line of treatment prescribed for the bulk of these cases, but to emphasize the importance of the general treatment of

the case and the necessity for removing some of the remote causes of this affection.

If treatment is begun promptly, and if both the local and general conditions are given careful attention, the prognosis in this early stage of chronic catarrhal otitis media is always favorable.

II. *Advanced Stages of Chronic Catarrhal Otitis Media.* Under this subdivision we include long-standing plastic exudations and adhesions in the tympanic cavity, retraction of the membrana tympani and fixation of ossicles. In this advanced stage of catarrhal processes, hypertrophic changes have usually taken place both in the nasal passages and in the tubal and tympanic areas. The turbinal tissues obstruct the calibre of the nares; the hypertrophied mucosa reduces the lumen of the Eustachian canal; the plastic exudate, partially dried, binds down the membrana tympani and ossicles. These are the pathological results in this stage of chronic aural catarrh, and are the problems which confront us and to which we direct our mechanical and therapeutic measures. Inflation is an important consideration; the Politzer bag and catheter were the sheet anchor of the aurist several decades ago, before the introduction of the many forms of aural massage and other devices to attack the membrana tympani and ossicles from without. It is rational to assume that no matter what means may be employed to loosen adhesions either of the ossicles or membrana tympani, permanent improvement cannot be obtained unless the exciting cause, i. e., the thickened mucosa of the nasal, post-nasal or Eustachian tract is successfully dealt with. Inflation should be regularly practiced either daily or on alternate days, for a period of five or six weeks if necessary. Where the use of the catheter indicates that the lumen of the Eustachian tube has been impaired, excellent results may frequently be obtained by the occasional introduction of the whalebone bougie. From my own experience and observations, I would conclude that the Eustachian bougie is of inestimable value in the treatment of this class of cases, not only where there is a decided stricture of the Eustachian tube, but also where the lumen of the tubal canal indicates a much diminished diameter. The bougie in this class of cases should be used systematically and regularly. A bougie of properly selected diameter should be passed the full length of the Eustachian tube, and left in position for a time varying from one to ten minutes. If the patient complains of continued pain while the bougie is in position, it should be immediately withdrawn. The first application of the bougie is usually the most uncomfortable to the patient. When the bougie is withdrawn, and if there are no contra-indications, thorough inflation of the tympanic cavity should follow.

Repeat the introduction of the bougie about twice each week unless unfavorable reaction is noticed. Unless the patient cannot tolerate it, the next larger size bougie may be used, and this plan may be continued and the tubal canal subjected to a gradual dilatation until the diameter of the affected tube is slightly larger than the lumen of the average normal Eustachian tube.

Of the contra-indications for the continued use of the bougie, perhaps the most frequent are a feeling of fullness and dullness in the ear, and an increase in the subjective symptoms.

Of course, the main element of value in the use of the bougie is a mechanical one, and the improvement noticed after its application is due to a clearing and dilatation of the Eustachian tube. The massage of the mucosa and musculature of the Eustachian tube and its stimulating effect both on the circulation and on the peripheral nerve endings, in loco and reflex, is another valuable factor.

As to the gold electrolytic bougie, I believe the addition of the mild galvanic current with its stimulating effect on the mucous membrane, nerves and muscles of the Eustachian tube, enhances the value of the bougie; but as to its mechanical and electrolytic results, I am not so sanguine, and can see no advantage from it over that to be derived from an intelligent use of the whalebone bougie.

The most interesting development in the mechanical treatment of chronic middle ear catarrh has undoubtedly been the introduction of massage of the drum membrane and ossicles in its manifold forms. Beginning with the Siegle otoscope and Delstanche masseur, there has been an interesting evolution to the present complicated electric aural massage pump, and the creditable efforts of Jackson, Ostmann, Pyncheon and others have received due appreciation. Luce claims a radical modification in massage treatment by the use of his cleverly constructed pressure probe, whereby the ossicular chain is brought directly into action along its physiological axis.

It is scarcely the province of this paper to discuss the many details of the several forms of massage technique and their advantages and disadvantages. Suffice it to say as far as my own experience is concerned, that I have not been able to ascertain better results from the use of the several complicated machine masseurs than by the use of the simple hand piston pump and pneumatic speculum. Adhesions which are so firm and tough that they will not yield to the hand masseur, are usually not benefited by any other or more complicated machinery, and require perhaps more radical treatment. Recent fixation of the ossicles and slight adhesions may be broken up by repeated massage either with a hand-masseur or with the electric massage pump; long-standing adhesions often resist every form of

mechanical massage. Of the operative treatment which may be favorably considered in these cases, tenotomy and intra-tympanic severing of such adhesions is the only one which has partly stood the test of time. Excision of the ossicles in ankylosis has been frequently advocated, but the favorably reported results have been temporary, as new cicatrization and fixation generally follows in the wake of such technique. The medications to the aural tract to which I have shown partiality in this class of cases. I would especially mention a ten per cent solution of campho-menthol in benzoinol, a few drops of which may be injected through the Eustachian catheter and forced by compressed air into the tympanic cavity. I have also used iodine, carbolic acid and glycerine in a similar manner. In fact, I have endeavored to treat the mucosa of the tympanum and Eustachian tube in about the same way that I would treat the mucosa of the nares, the only difference being the difficulty in making applications direct to these affected areas.

Internal therapeutics in this stage are of but little value. Climatic conditions often materially influence the progress of chronic middle ear catarrh. The prognosis depends on the degree of deafness and on the ability of the individual case to respond to well-planned systematic treatment.

III. *Oto-Sclerosis*. In a definitely diagnosed case of oto-sclerosis, it is well to advise the patient that our progressive science and research has thus far been unable to suggest a beneficial form of treatment.

Too much emphasis cannot be laid on the necessity of a careful differentiation between the hypertrophic and the sclerotic forms of otitis media chronica catarrhalis.

3858 Westminster Place.

A STUDY OF THE FATAL RESULTS OF OPERATIONS UPON THE NOSE AND THROAT.*

BY FRANCIS R. PACKARD, M. D.

Aurist to the Out-Patient Department of the Pennsylvania Hospital; Professor of Diseases of the Ear Philadelphia Polyclinic Hospital, Philadelphia, Pa.,

When one considers the enormous number of operative procedures which are now performed in the nose, naso-pharynx and pharynx, which are in most instances classed as minor operations, being done under local anæsthesia, and as a rule without necessitating the confinement of the patient to bed, it is really a matter of surprise that so few fatal results are recorded. That fatalities do result from them is but too well known. It was with an idea of ascertaining somewhat more definitely the facts concerning the mortality attendant upon such operations that the following paper was undertaken. It is of course impossible to obtain satisfactory statistics on such a subject, but a mere collection of the recorded cases, and a summary of the conclusion to be drawn from them, will, it is hoped, possess some value and interest for those engaged in rhinological work. In collecting my cases, I have not included cases in which the patient suffered from tuberculosis, or any other disease to which his death might be in any way attributable, nor have I included cases in which the operation was performed for the removal of a malignant growth. There are a number of instances in which operations for the removal of sarcomatous and carcinomatous tumors have resulted fatally within a short time after their removal, but in all these cases there is the possibility that the tumor was so far advanced that the patient's death was to be expected within a short time, and though it may have been hastened by the operation, it was not solely attributable to it.

It is astonishing that with the wide-spread use of cocaine as a local anæsthetic in the nose and throat, there are so very few fatal cases from its use. I have been able to find but one fatal case. It is reported by Baker¹. The patient was a girl 12 years old. A considerable quantity of cocaine solution, the exact strength and amount not stated, was sprayed into the post-nasal space for the purpose of removing adenoids. The operation was completed and the patient sent into another room. While putting on her wraps, she suddenly became faint and fell over dead.

*Read at the Annual Meeting of the American Laryngological Association Held at Atlantic City June 2, 3 and 4, 1904.

¹ *Am. Journ. of Ophthal.*, 1893, vol. x, p. 342.

I.

I have tabulated all the cases I could gather from the literature, and in doing so have included those reported in the tables compiled by Dr. Holloway² and published in 1896, and Dr. F. W. Hinkle³ which were published in 1898. I have been unable to add very much to their totals. I thought it best to include their cases with mine in order to render the material on the subject convenient of access.

As will be seen by the table, the total number of deaths attributable to the use of a general anæsthetic was 26, divided up as follows: Chloroform 24. Chloroform and A. C. E. Mixture 1. Ether 1. In two of these cases at autopsy, the bronchi and lungs were found filled with blood. Their reporters, however, regarded the fatal results as due to the anæsthetic, so that I have included them in the table. The case in which death followed the administration of ether was that of Dr. G. M. Marshall of Philadelphia, and communicated verbally by him before the Section on Otology and Laryngology of the College of Physicians of that city in which the fatal result occurred some days after the operation, and was apparently the result of an ether bronchitis. The patient was a very decrepit old man. These statistics seem to furnish a most conclusive argument in favor of the use of ether in preference to chloroform in operations upon the nose and throat. Hinkle⁴ refers to the fact that deaths from chloroform occur with peculiar frequency in patients who suffer from what the French term "*lymphatisme*," a condition which is sometimes called the "*habitus lymphaticus*." It is in the victims of this diathesis that hypertrophy of the faucial tonsils and adenoids are of most frequent occurrence. I cannot do better than quote Hinkle's conclusions on the subject, with which I am in the fullest accord.

"1. Statistics show an exceptionally high mortality from chloroform anæsthesia in the operation for the removal of lymphoid hypertrophies of the pharynx.

2. The observations of the Vienna pathologists show that sufferers from "adenoids" frequently belong to an abnormal constitutional type, that has been found peculiarly susceptible to chloroform narcosis.

3. In view of the statistical and pathological data presented the general use of chloroform in operations for hypertrophied tonsils, or nasopharyngeal adenoids, is inadmissible."

The youthfulness of the patients who died as a result of the administration of an anæsthetic for these operations is, of course, to

² *Med. Mag.*, London, 1896, vol. v, p. 598.

³ *Med. Journ.*, Oct. 29, 1898.

⁴ *Loc. cit.*

be explained by the fact that operations of this character are much more commonly performed on children than adults. Thirteen of the cases were in their first decade, and we might add to this number the case noted as a "child." Four were in the second decade, and two in the third. The other cases which were classified accordingly to age were, adult 1, 40 years 1 and 63 years 1. One case is referred to as "an old man."

As regards sex of the cases in which it was mentioned ten were males, and nine females, which may be regarded as a very negative showing indeed.

II.

Of these cases I have collected and tabulated twenty-two. I must confess the result of my labors surprised me very greatly. So much is said and written about the danger of encountering a hæmophilic in the course of our operative work, and of the fatal result which may be expected if any cutting operation is attempted, upon such a person that I had been led to expect that a careful search of the literature would reveal a large number of such cases. My table shows but fourteen deaths from hæmorrhage following operation for the removal of adenoids or tonsils or both. This is either a testimony to the rarity of dangerous hæmorrhage following such operative procedures, or to the carefulness with which such operations are avoided by the wary operator. As we would expect the deaths from hæmorrhage following these operations are most common in the young. Of the fourteen cases of death from hæmorrhage which are in my table, eleven were ten years old or younger. Following the usual natural history of hæmophilia, deaths from hæmorrhage occurs much more frequently in males than in females. Of the fourteen cases there were eleven males died from hæmorrhage following the removal of tonsils or adenoids, and two females. The sex of one patient was not stated. Of the remaining eight operations with the nose and throat in which the death of the patient could not be ascribed to the anæsthetic, two resulted from meningitis following an attempt at correction of a septal deformity. One of these occurred in the practice of Dr. Joseph S. Gibb, of Philadelphia, and has never been published although Dr. Gibb reported it verbally at a meeting of the Section on Otology and Laryngology of the College of Physicians of that city. Dr. Gibb has kindly written for me the following history of the case:

"A vigorous, healthy-looking young man presented himself at the clinic of the Episcopal Hospital with a well marked deviation of the septum which he was exceedingly anxious to have cor-

rected. The operation was done under cocaine anaesthesia. The septum was corrected by introducing a saw beneath the most prominent part of the deviated portion, and sawing in an upward and inclined direction through to the other nasal chamber. The deviated portion of the septum was then pushed through this incision and retained in position by means of a Mayer tube. There was considerable shock following the operation, though no unusual hemorrhage occurred, and in consequence, and contrary to the usual custom, he was advised to remain in the hospital, which he did. The next day he left the hospital, the resident physician reporting his condition good. According to instructions the second day after the operation the patient called at the office of an assistant; the tube was removed and cleansed, and the nasal chambers were also well cleansed and the tube replaced. At this time his condition was reported to me as good. He was not seen again either by myself or any member of my staff, notwithstanding explicit directions were given him to report at the hospital, until the seventh day after the operation, at which time my assistant was called to see him at his home. He was then in a septic condition, showing some evidence of meningeal irritation. This condition grew rapidly worse. He had hyperpyrexia, maniacal delirium, coma and finally death on the eighth day after the operation."

The remaining six cases of the twenty-two in which death resulted from an operation upon the nose and throat, and was not the result of an anaesthetic were as follows:

Application of perchloride of iron for epistaxis, causing death from meningitis.

Operation by external incision for removal of nasal polypi and orbital tumor. Death from purulent leptomeningitis.

Cauterization with galvano cautery of middle turbinate. Death from meningitis.

Frontal sinus probing and injection of lachrymal canal. Death from meningitis.

Removal of exostosis. Death from meningitis.

One case of death from sepsis and exhaustion is reported following tonsillotomy in a boy. The tonsils were the seat of purulent deposit at the time of their removal. To summarize it will thus be seen that in twenty-two cases of death following operation in the nose and throat in which the fatal issue was not the result of the anaesthesia, in fourteen cases the cause of death was hæmorrhage; in six meningitis, and in two general sepsis and exhaustion.

III.

In this group I have collected five cases. In several of them I have been unable to ascertain the exact cause of death because it has been impossible for me to get the original article, and the reference gave no further particulars than those which I have included in the table. They, every one of them, occurred as the result of intranasal operations. There was one death attributable to each of the following operative procedures:

Curettement of nasal polypi.

Galvano cauterization of middle turbinates followed by hæmorrhage requiring tampon. Death in three days.

Galvano cauterization for bony and membranous occlusion of right nasal fossa. Death in six days after operation.

Curettement for chronic purulent rhinitis. Death in three days.

Removal of polypi by snare. Empyema of antrum of Highmore. Death eleven days after operation.

In each instance death occurred a number of days after the operation, and in every instance one is led to suppose by the history that it was due to meningitis. From the above it is readily inferred that meningitis as a complication of intranasal operation should not be lightly regarded. It has occurred and proved fatal in enough instances to make us realize that the close relationship existing between intranasal structures and the meninges is not to be overlooked in our intranasal operative work.

TABLE No. I.
DEATHS ATTRIBUTABLE TO THE USE OF A GENERAL ANÆSTHETIC DURING OPERATIONS UPON THE NOSE AND THROAT.

REPORTER	REFERENCE	OPERATION	AGE	SEX	ANÆSTHETIC	REMARKS
1 Burton and Seeds	Brit. Med. Journ., 12-18-1880, p. 597	Removal of tumor of nares	Adult	Male	Chloroform	Cause of death, syncope.
2 Anonymous	Lancet, 1886, vol. ii, p. 440	Removal of tumor of nares			Chloroform	Death from effects of anæsthetic and obstruction of air passages.
3 R. C. Smith	Lancet, 5-21-1882	Removal of adenoids with Lovenberg's forceps.	11 years	Male	Chloroform	Death from failure of respiration.
4 Anonymous	Brit. Med. Journ., 2-18-1883	Removal of adenoids	10 years	Female	Chloroform	Autopsy: bronchi filled with blood.
5 Anonymous	Report of Lancet Com. Lancet, 1-1-1886, p. 77	Removal of adenoids	10 years	Male	Chloroform	Death from syncope.
6 T. W. Bailey	Brit. Med. Journ., 4-22-1883, vol. i, p. 890	Removal of adenoids	8 years		Chloroform	Respiration ceased before operation was begun.
7 H. Tilly	Brit. Med. Journ., 8-12-1883, vol. ii, p. 384	Removal of adenoids	11 years	Male	Chloroform	Chloroform given for two minutes.
8 J. Brathwaite	Brit. Med. Journ., 8-26-1883, vol. ii, p. 483	Removal of nasal spur	21 years	Female	Chloroform	A little over 4 oz. of chloroform was given.
9 Anonymous	Forsythe, 9-24-1880	Removal of adenoids	9 years	Female	Chloroform	Death a few minutes after beginning anæsthetization.
10 Anonymous	Lancet, 9-30-1886, vol. ii, p. 817	Removal of adenoids	63 years	Male	Chloroform	Less than 1 oz. of chloroform used. Died of syncope after apparently coming out of anæsthesia.
11 S. W. Plummer and R. Robinson	Lancet, 10-7-1893	Removal of adenoids	10 years		Chloroform	Chloroform given twice.
12 Anonymous	Brit. Med. Journ., 10-14-1892	Enlarged tonsils	12 years		Chloroform	At autopsy, trachea and bronchi filled with blood.
13 Anonymous	Marpleton Mercury, 12-26-1893	Enlarged tonsils	7 years	Female	Chloroform	Death before operation, 3 or 4 minutes after chloroform had been given.
14 Anonymous	Brit. Med. Journ., 3-29-1894	Removal of adenoids	4 years	Male	Chloroform	Death two minutes after administration of chloroform.
15 F. White	Brit. Med. Journ., 3-18-95	Removal of nasal polypus	10 years	Female	Chloroform	Death before operation was begun.
16 Edmund Owen	Archives of Pediatrics, 3-18-95	Removal of post nasal growth	20 years	Female	Chloroform	Death early in operation.
17 Anonymous	Brit. Med. Journ., 6-18-96	Removal of enlarged tonsils	10 years	Male	Chloroform	Private information given to Dr. Holloway.
18 Anonymous	Brit. Med. Journ., 1-4-1896	Removal of adenoids	9 years	Male	Chloroform	Death before operation was begun.
19 Anonymous	Dr. Holloway's Table Med. Mag., 6-1896	Hypertrophied tonsils	16 years	Male	Chloroform	Started anæsthesia with A. C. E. mixture and then changed to chloroform.
20 Anonymous	Brit. Med. Journ., 7-10-1897	Removal of tonsils and adenoids	5 years	Female	Chloroform	Personal communication to Hinkle.
21 Anonymous	Brit. Med. Journ., 7-10-1897	Hypertrophied tonsils	Child		Chloroform	
22 Anonymous	Brit. Med. Journ., 7-10-1897	Removal of adenoids	6 years	Male	Chloroform	
23 McCauley	Clinical Mag., 6-18-1898	Removal of tonsils and adenoids	6 years	Male	Ether	
24 Dr. Dunn of Chicago	Hinkle, N. Y. Med. Journ., 10-26-1898	Adenoids				
25 F. W. Hinkle	N. Y. Med. Journ., 10-22-1898	Removal of adenoids				
26 G. M. Marshall	Personal Communication	Intranasal polypi				

TABLE No. II.
DEATHS RESULTING FROM OPERATIONS IN THE NOSE AND THROAT IN WHICH THE FATAL ISSUE WAS NOT THE RESULT OF THE ANÆSTHETIC.

REFERENCE	OPERATION	ANÆSTHESIA	AGE	SEX	REMARKS
1 L. Galliard Bull Soc. g. anat. de Paris, 1880, Lv. 438.	Application of perchloride of iron for epistaxis		Youth	Male	Autopsy showed gangrenous inflammation of nasal mucous membrane due to perchloride of iron, also meningitis in base of brain.
2 H. Knapp, Archives of Otolary, 1884, vol. xiii, p. 51.	Operation by external incision for removal of nasal polyp and orbital tumor		47 years	Female	Died four days after operation from purulent lepto meningitis.
3 F. J. Quinlan, N. Y. Med. Rec., 1890, vol. xxiii, p. 252.	Cauterization with galvano cautery of middle turbinate. Had had several operations for adenoids and cutting forceps some months before		18 years	Female	Died seventy hours after operation of meningitis.
4 Delavan, Trans. Am. Laryng. Assoc., 1892, p. 8.	Adenoids. Lowenberg's forceps and finger nail	Ether	2½ years	Male	Died of hemorrhage which set in eight hours after operation.
5 J. E. Newcomb, Am. Journ., Med. Sci., 1886, p. 314.	Curette	Ether	3½ years	Male	Died sixteen hours after operation from hemorrhage.
6 A. Bock, Central Med. Times, 1891, vol. 3, p. 118.	Tonsils and adenoids, guillotine and Gottstein's curette	No anæsthetics	6 years	Male	Died the same day after repeated hemorrhages. Paquetin cautery applied over operated area.
7 Leplat Journ. Ophthal., Otol. and Laryngol., April, 1886	Frontal sinus probing and injection of lachrymal canal				Death probably from meningitis.
8 Schnieggel, Monatschr. f. Ohrenh., 1897, vol. 2, p. 251.	Removal of adenoids. Gottstein's curette and forceps	Not anæsthetized	12 years	Male	Death from hemorrhage. Patient had scrofula.
9 J. A. Keith, Laryngoscope, 1893, vol. iv, p. 261.	Adenoids. Gottstein's curette and forceps	Ether	4 years	Male	Died from effects of continued bleeding seven days after operation.
10 W. Preble, Boston Med. and Surg. Journ., 1898, vol. cxxviii, p. 467.	Removal of adenoids. Forceps and finger nail	Ether	11 years	Female	Died of hemorrhage on seventh day after operation.
11 R. Levy, Ann. Otol. Rhinol. and Laryngol., 1898, vol. vii, p. 241.	Removal of adenoids. Each operation	Cocaine	30 years	Male	Died fifteen days after operation. Autopsy showed thrombosis of coronary arteries, myocarditis, pericarditis and general septicæmia. Iron-rod due to syphilitic arteritis. Hypodermic abscess on leg which may have caused septicæmia.
12 R. Levy, Ann. Otol. Rhinol. and Laryngol., 1890, vol. vii, p. 241.	Removal of exostosis	Cocaine used antipyrin to relieve general anæsthetic packing	25 years	Female	Reported from practice of Dr. W. W. Balette. Death eleven days after operation from meningitis.
13 Stucky, Am. Pract. and News, 1893, vol. xxvii, p. 171.	Removal of tonsils and adenoids. Guillotine and Gottstein	Chloroform	15 years	Male	Boy very weak and septic. Death nine hours after operation from general condition of exhaustion and sepsis.
14 R. Sachs, Ear, Nose and Throat, 1897, vol. 1, p. 10.	Adenoids. Gottstein curette	Chloroform	10 years	Male	Distinct history of hæmophilia in family. Constant hæmorrhages.
15 A. A. Bliss, N. Y. Med. Journ., Sept. 8, 1890	Straightened nasal septum and removed adenoids	Not noted	17 years	Male	Distinct history of hæmophilia in family ascertained too late to be of service. Died on fourth day after operation.

TABLE No. II.—Continued.
DEATHS RESULTING FROM OPERATIONS IN THE NOSE AND THROAT IN WHICH THE FATAL ISSUE WAS NOT THE RESULT OF THE ANESTHETIC.

REFERENCE	OPERATION	ANESTHESIA	AGE	SEX	REMARKS
16	Ingals and Ohls Am. Year Book of Med. and Surgery, 1901	Removal of tonsils and adenoids.	Chloroform	17 years	Female.
17	F. J. Stewart, Lancet, Nov. 15, 1902	Snare and forceps Tonsils and adenoids	Ether	7 years	Male.
18	Damianos and Herman, Wiener Klin. Wochenschr., 1902, No. 9	Tonsillectomy		23 years	Male.
19	W. E. Casselberry, Chicago Med. Rec., Jan., 1895	Tonsillectomy		3 years	
20	Ricordeau Thesis, 1898. Ref. to by Har- mon Smith. The Laryngoscope Feb. 1904	Tonsillectomy		24 - 25 years	Male.
21	Ricordeau Thesis, 1898. Ref. to by Har- mon Smith. The Laryngoscope Feb. 1904	Tonsillectomy		8½ years	Male.
22	J. S. Gibb, personal communication, 1904	Correction of septal deformity	Cocaine used		

TABLE III.
DEATH FOLLOWING OPERATIONS UPON THE NOSE AND THROAT IN WHICH THE EXACT CAUSE OF THE FATAL RESULT WAS NOT GIVEN.

REFERENCE	OPERATION	REMARKS
1	Loeberer, Friedrich's, Bl. f. Otol. Rhinol. Med., 1892, vol. xxii, p. 23	Curettement of nasal polypi
2	R. W. Wagner, Munchr. Med. Wochenschr. Dec., 1891	Galvano cauterization of middle turbinates followed by hemorrhage requiring tampon
3	V. Lange, Deutsche Med. Wochenschr., No. 23, 1892	Chronic inflammation of nose and membranous occlusion of right nasal fossa
4	K. Stoerk, Centrall. f. Laryngol. Rhinol. Otol., p. 823	Curettement for chronic purulent rhinitis
5	R. W. Wagner, Munchr. Med. Wochenschr., Jan., 1893, p. 210	Removal of polypi by snare, encephalitis and pyemia of antrum of Highmore.

REPORT OF A CASE OF MASTOIDITIS COMPLICATED BY NEPHRITIS AND ERYSIPELAS, WITH REMARKS.*

BY JOSEPH A. WHITE. A.M., M.D., RICHMOND, VA.

Professor of Ophthalmology and Associate Professor of Otology and Laryngology in the University College of Medicine, Richmond, Va. Senior Surgeon to the Richmond Eye, Ear, Throat and Nose Infirmary. Member of the American Ophthalmological Society, of the L. R. and O. Society, the A. M. A., etc., etc.

On the 24th of December I was called in consultation with Dr. Upshur to see a little boy seven years of age who had had a discharge from his ear some days previously, but this had ceased. There was some redness and swelling, with pain upon pressure over the tip of the mastoid, but no discomfort, or swelling or redness over the antrum. The drum head was reddened, but the perforation was apparently healed. Examination of the throat showed enlarged tonsils, and some adenoid tissue, with the usual attending mucous discharge. His temperature was 103° . From these conditions it looked to me as if I was dealing with a commencing Bezold's mastoiditis, and I advised an operation. On the 26th I did a simple mastoid operation. When the antrum was opened I was uncertain whether I found any secretion in it or not; there was possibly a drop of pus. I removed the cortex and the tip and found no suppuration. The communication between the antrum and drum cavity was normal, and I failed to observe any pus in irrigating the parts with hot bichloride solution. The temperature fell immediately after the operation to $100.2-5^{\circ}$. The next evening it went to about 102° , but on the 28th, as it rose to 103° and the boy complained of pain, I removed the dressings and found purulent secretion from the antrum and also from the external ear. It was freely irrigated and the dressings reapplied. On the sixth day the temperature was normal in the morning and about 100° in the evening, and there was very little discharge. From that time on his temperature never rose above 100° , and at times was slightly sub-normal, and he left the hospital in two weeks.

On the 18th of January I dressed the ear in my office. His temperature was normal and there was no secretion from the ear. Apparently he was well. The next day he had a sudden accession of fever, his temperature went to 102° , and there was a discharge of pus from the antrum. The next day the temperature went back to $99.4-5^{\circ}$, and the discharge from the antrum lessened. The tempera-

* Read at the Tenth Annual Meeting of the American Laryngological Rhinological and Hological Society, held at Chicago, May 20, 31 and June 1, 1904.

ture then varied slightly between normal in the morning to 100° in the evening until the 24th when the temperature made a jump again to $103.4-5^{\circ}$, although there was no discharge from the wound. The next morning it was normal. There were slight temperature variations from this time, varying between normal and 100° until January 30th, when it jumped to 102° in the evening. It was normal the next morning, the 31st, but went up to 102° in the evening again. Feb. 1st, 99° in the morning and 101° in the evening. On Feb. 2nd the temperature was 99° in the morning, but in the afternoon the boy had a chill about 4 o'clock, and the temperature jumped to 105° . Although there was no visible trouble about the ear or mastoid, I thought the signs pointed to sinus complication. The temperature the next morning, however, was normal again, and that evening it went to $102.3-5^{\circ}$. Although the temperature was taken every two hours I here give only the highest and lowest in the twenty-four hours. On Feb. 3rd we found that the passage of urine was very scanty and dark in color, and the family physician took a sample home for examination. The next morning the temperature fell again to $99.4-5^{\circ}$, but at 6 a. m., it had gone to 104° , and by 2 p. m., it was $105.4-5^{\circ}$, at which hour I saw the patient again in consultation with the family physician. Examination of the mastoid showed it to be red, swollen, and tender to the touch. We found that he had passed hardly any water in the twenty-four hours, and what was passed was loaded with blood and albumen. The symptoms seemingly indicated a recurrence of the mastoid trouble with probable sinus involvement and systemic infection, and I ordered him to the hospital to examine the sinus. Two hours later when I reached the hospital to do the operation, and had placed the patient on the table, I found the redness and swelling had increased very much, and covered not only the mastoid, but was extending up over the auricle, and over the occipital and temporal regions. The demarkation of the swelling made me suspect erysipelatous inflammation, and on watching it for a while we found it noticeably spreading whilst we were watching it. Under the circumstances I thought it best to wait, so he was put to bed, given saline enemas and put into a hot pack, and the parts painted with ichthyol. The temperature fell at midnight to $101.2-5^{\circ}$. On Feb. 5th, the next day, at two o'clock it was 105° again, but there then was no doubt about the erysipelas, as it had spread over nearly the whole side of the head and face. The kidneys acted slightly about 11 a. m., but the water was filled with albumen and blood. From that time until the 10th of February the temperature varied between 99° and $104.2-5^{\circ}$ daily. The erysipelas in the mean time spreading over the face to the other ear. Pure carbolic acid

seemed to be the only remedy that was of any value in checking its progress, after trying everything that is suggested for erysipelas. Under the hot pack and saline injections the kidneys gradually improved, and on Feb. 11th all the symptoms were very much ameliorated, and the temperature fell to about normal. It remained between 97° and 99° until he left the hospital on Feb. 16th. After his return home his temperature continued to be taken four times a day, and it varied between 97° and $99.2-5^{\circ}$ until March 12th, when it went to $100.2-5^{\circ}$ in the evening. The next evening it went to $100.2-5^{\circ}$, and for four days it was from $100.2-5^{\circ}$ to $100.4-5^{\circ}$ every afternoon. I was sent for, but I could not find any trouble, although he flinched a little from pressure on the antrum, the cutaneous covering over it being a little reddened. Hot applications were used, but he did not show any trouble, and the temperature went back to normal on the 15th. On the 18th it jumped up to $100.2-5^{\circ}$ again. I saw the child on the 19th and found what resembled somewhat a small furuncle just over the antrum. I punctured it, and by inflating the Eustachian tube, blew out a small bead of pus. This healed up at once, and since then he has had no trouble.

Now this case presents some interesting points. First, the long continuance of the temperature changes. Second, the disappearances and recurrences of the suppuration. Third, the kidney complication, and especially the suppression of urine so long after the operation. Fourth, the development of erysipelas simulating sinus infection. I have reported it in detail because someone else may have a similar experience. He had had tonsillitis some little time prior to the mastoid trouble, and his temperature varied in such a way that his family physician thought it was possibly malarial. The acute suppurative trouble of short duration that he had in the ear did not seem to have any special influence upon the temperature variations. When the mastoid complication arose I attributed the temperature changes to the mastoiditis. After the operation I still thought the temperature changes due to the mastoid complication. The long continuance of this condition, however, made me a little uncertain, but as his family physician was attending the case throughout, and treating it on the basis of some malarial influence being present, I had no suggestion to make. When the sudden elevations and great variations of temperature took place, attended with swelling, redness and pain over the mastoid, I naturally thought the symptoms indicative of sinus complication, and considered the nephritis due to co-incident infection of the kidneys. How long the latter trouble had existed it was impossible to say, but the physicians in attendance were of the opinion that it was caused by the

anæsthetic, or aggravated by it if it was present prior to the operation. Admitting either hypothesis, could it not have been partly responsible for the temperature changes? and, moreover, could it have had any influence in keeping up the irritable condition of the mastoid, with intermitting attacks of suppuration, which would disappear and the parts become apparently normal, although in a few days it would reappear, and each time from the antrum? At no time was there any perforation of the drum head, or discharge from the external ear, except two days after the operation, when there was evidently discharge from the apparently healed perforation, which had resulted from the acute suppuration of the middle ear prior to the mastoid complication. There was merely a thin cutaneous covering over the antrum and this could be pushed out, just as the drum head is, by inflating the Eustchian tube. It is possible that there may have been some pneumatic spaces above the antrum, as I have found in other cases, which I overlooked, and the reappearance of suppuration in the antrum may have been caused by some remains of the trouble in these spaces, because I failed to curette them.

It is equally difficult to explain the advent of erysipelas. The boy had been secluded in his chamber at home for some weeks, no one of the family or physician in attendance had seen or known of a case of erysipelas in either hospital or private practice for months, and contagion, therefore, was not to be considered. If erysipelas is propagated by a germ, where did it come from?

To see what influence nephritis might have on mastoid disease, either as an etiological factor, where it exists prior to the mastoid trouble, or as a complication that would cause a lingering convalescence because of the lowered vitality, I wrote to a number of otologists for their experience. From the majority of the replies I concluded I had broached a subject which had received very little attention, although some had made some observations along this line. We all have had some experience with the influence of another kidney trouble upon mastoid trouble, namely, diabetes, which I think is generally admitted to play a part as an etiological factor in the production of this disease. Quite a number of the gentlemen to whom I have wrote observed the presence of nephritis in mastoiditis, although very few of them have observed it prior to the ear symptoms. In performing operations under anæsthetics some operators look for kidney trouble as a routine measure, as it is important to know the condition of the kidneys before giving an anæsthetic, and the presence of nephritis might be a contra-indication to its use. Others have observed the nephritis after the operation, some-

times with suppression of urine, but attributed it to the use of the anæsthetic. Some have observed a lingering convalescence, and two or three have also noticed a tendency to a relapse of the suppurative process where nephritis has been present. Several have had cases of unusual severity which they thought might have been due to the kidney complication. One gentleman had a case in which the constitutional symptoms were so severe that sinus complication was considered, and an operation suggested. This was declined, and the patient ultimately recovered both from the mastoid and kidney trouble. Another one reports a case of chronic middle ear suppurative trouble with a profuse foul discharge, which had recurring acute attacks, with redness and swelling in the mastoid region, accompanied each time by an acute exacerbation of a chronic nephritis, as revealed by the examination of the urine. The same gentleman tells me of another case in a man fifty years of age with a chronic purulent discharge from the middle ear for a considerable time, in which eventually mastoid symptoms supervened. With the advent of the mastoid symptoms the urine was examined and showed acute nephritis. The delayed healing, or lingering convalescence, and the tendency to recurrence of the suppuration were probably due to a depraved condition of the constitution, with impoverished blood and enfeebled resistance to pyogenic agencies, which might have resulted from kidney complication. That there is some relationship between nephritis and erysipelas, as also between nephritis and influenza and tonsilitis we have sufficient authority in medical literature. Most of the text books refer to the connection between nephritis and these troubles, and in speaking of erysipelas, nephritis is given by a number of authors as the predisposing cause. This may explain the erysipelas in this case. In tonsilitis it is a very common thing to find febrile albuminuria and even nephritis, which looks as if there was some connection between them. In Bright's disease as the result of circulatory disturbances and changes, we have retinitis and auditory troubles, manifested by dizziness and by tinnitus; would it not also be probable that if suppuration of the middle ear occurred the cause might have been primarily in the diseased kidney? I think we can all admit that there is a connection between mastoiditis and nephritis in acute infectious troubles, in as much as both are due to a common infection, and where there is chronic nephritis present with mastoid disease, I am of the opinion that the prognosis would be much graver than in an uncomplicated case of mastoiditis, because it would be natural that the convalescence would be slower, with possible recurrences, remissions and exacerbations.

Apart from the importance of the examination of the urine, which is usually made prior to giving an anæsthetic, I think it would be wise to make a urinary analysis in all cases of chronic suppurative otitis media, because the presence of nephritis might have an important bearing upon the prognosis of the case. Possibly the recurrence of acute inflammatory attacks in these cases might thus be explained, and, moreover, acute middle ear trouble may pass into the chronic stage if the kidneys are diseased. Because, however, of the small number of observations made along this line, it is difficult to draw any satisfactory deductions. Still, is it not rational to suggest that infection of the kidneys could take place from a purulent focus in the temporal bone? or, even that infection of the ear might under certain conditions be secondarily dependent upon diseased kidneys?

One case sent me by a well known otologist among my correspondents would seem to bear out to some extent both of these hypotheses. Mastoiditis on the right side had existed for months. Wilde's incision was resorted to three times, later the kidneys became involved with albumen, blood and pus in the urine. The right ear which was operated on improved, and the patient seemed to rally, when the left ear became involved, requiring a mastoid operation. Both ears did well, but he succumbed to the kidney trouble. Here, in all probability, the kidneys were infected by the purulent focus the right temporal bone, and possibly the left ear may have become involved because of the kidney disease and the consequent lowering of the vital resistance to pyogenic agencies. Without the kidney trouble the second ear might have escaped infection.

I am aware that I am on purely speculative ground, but speculation sometimes leads to a more reliable foundation, by awakening an interest in a subject and a closer observation that may bring about important results.

CEREBRAL ABSCESS.

BY DR. GOTTLIEB KIAER, COPENHAGEN.

Johanne J., æt. 29, has, from childhood, had a discharge from the left ear, cause unknown. During the last four months she suffered from headache and heaviness over the left temporal region, and was attacked now and then by rigors, but no nausea or vomiting. She is low-spirited, has no appetite and much emaciated. February 5, 1902, the otoscope revealed complete destruction of the tympanic membrane, the recessus tympanicus filled with foul-smelling, yellowish masses, the epidermis but partly covering the promontorium. The mastoid region appeared normal. Under chloroform anæsthesia, the radical operation was performed. The mastoid antrum was enlarged and filled with the same yellowish fetid masses. There had been partial necrosis of the osseous structure between the antrum and tympanum which opening was readily enlarged by an ear-spoon curette, removing down to healthy bone. The auditory tract was cleansed, made freely patulous. Iodoform and gauze dressing applied.

During the first three weeks the morning temperature ranged from 37.1° to 37.6° C., in the evening from 37.6° to 38.5° C. Now and then she had light rigors; pulse 60 to 70, regular, appetite good and patient in good spirits. The dressing was changed on the sixth day, afterwards every second day. At the end of three weeks the temperature arose suddenly to 40.3° C., and remained high during the following eight days, ranging from 38.8° a. m., to 39.4° p. m.

She became nauseous, complained of a feeling of heaviness in her head, answered questions slothfully, dozed continually, but did not vomit, had no dizziness, optical disturbance or cramps. Reflexes and sense of touch, normal. The ophthalmoscope revealed nothing abnormal, urinalysis negative and no tenderness on percussion over temporal region. During the following two days she has had vomiting, pulse 50, and a right-sided facial paresis developed. Deciding upon explanation, I trephined over the left median cranial fossa, just above the external meatus. No brain pulsation was felt, upon removing the sequestrum of bone. I then split the dura three c. m., in three directions with a knife evacuating a thin turbid but non-purulent fluid, well mixed with air. The dura was then loosened until tegmen tympani was reached and still no pus was found. The wound was dressed with iodoform gauze. Immediately after the operation the pulse rose from 50 to 80 per minute but the following day fell to 60. The facial paralysis vanished and the temperature became lower. On the second day following the operation, patient had a chill, temperature rose to 40.3° C., pulse 100; face became cyanotic, pupils slightly dilated, but still reacted to light; the skin was hot, patient very thirsty and complained of headache. Camphor mixture was prescribed, and patient felt better in half an hour. During the following six days the camphor and digitalis was continued, but the temperature remained high, 38° a. m., 39° p. m., pulse 60. The temperature quickly subsided to normal, pulse rose to 72, general condition improved and after three months at the hospital, was discharged as cured. The ear is in good condition and the general health of the patient is good, at the end of two years.

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PAPILLOMA OF THE LARYNX; WITH REPORT OF A CASE OF FORTY YEARS' STANDING.*

BY WM. LEDLIE CULBERT, M. D., NEW YORK CITY.

According to most clinicians, papilloma is found more frequently in the larynx than any other growth, fibroma coming next in frequency. In Massei's series of cases,¹ the proportion of papillomata to the total of laryngeal neoplasms was about 36 per cent; Elsberg found 50 per cent; Fauvel 59 per cent; and MacKenzie 67 per cent. My own experience, at least in recent years, has been that fibromata are a little more common than the variety under consideration. These growths are observed, singly or in groups, springing from almost every portion of the larynx—from the vocal cords, the ventricular bands, the lower half of the epiglottis or the ary-epiglottic folds. The site of predilection, according to Quinlan,² is the anterior third of the right vocal cord, and the anterior commissure. The posterior commissure rarely or never gives attachment to this variety of tumor. Papillomata sometimes attain a relatively enormous size, filling the whole larynx, and the trachea as well, for a considerable distance below the vocal bands.

Etiology. Almost every conceivable cause has been suggested for these growths. An etiological relation has been established, to the satisfaction of different observers, between the presence of papilloma and voice strain (illustrated by such widely divergent types as opera singers and hucksters), adenoid vegetations in the vault of the pharynx, mouth breathing, the inhalation of irritating substances, chronic laryngeal catarrh, tuberculosis, syphilis, whooping cough, gout, rheumatism, heredity, alcohol, tobacco, puberty, pregnancy, the "warty diathesis"³ and contagion. On the other hand, papillomata have been found in the newborn child and in deaf mutes, showing that irritation may often have no influence in their genesis. As a matter of fact, the occurrence of these growths in the larynx is, in most cases, no more explainable than the presence of warts on the small boy's hands, and they are said to disappear as spontaneously. There is doubtless a cause, but it is not often evident. Papillomata may occur at any age, and are found more commonly in the male than in the female. They may co-exist with fibromata.

*Read before the American Laryngological, Rhinological and Otolological Society at its annual meeting, held in Chicago, Ill., May 30, 31 and June 1, 1904.

Symptoms. The symptoms to which these tumors in the larynx give rise, are, in common with other benign growths in this situation, due to their mechanical effect, and depend on their size and location. Young children are apt to suffer more inconvenience than adults. One of the earliest symptoms is hoarseness, and in the absence of expert attention, the case is often treated for long periods of time as one of chronic laryngitis. As the tumor increases in size, the voice is gradually reduced to a hoarse whisper and eventually lost; or the voice may undergo sudden changes in quality and tone—"a deep bass, diversified by a squeak." This uncertainty and lack of control is quite characteristic of a tumor of the larynx, but not necessarily of a papilloma. Vocalization, under these circumstances requires the expenditure of considerable effort and results in complete exhaustion. A fair degree of respiration may be carried on through an astonishingly small space, but is occasionally interfered with to such an extent as to imperil the patient's life. Pain and difficulty in swallowing are, as a rule, absent; in this respect differing from malignant neoplasms occurring in this region, in which these symptoms are apt to be noted early. This is an important diagnostic point to bear in mind. Most of these patients complain of nervousness, low spirits, and general depression, and these symptoms are quite as likely to be observed in those having small growths, interfering only with phonation, as well as those presenting large tumors obstructing respiration.

Diagnosis. A persistent hoarseness, either intermittent or constant, for a period of weeks or months, should excite suspicion either of the presence of a laryngeal tumor or of paralysis of the vocal cords. The ultimate diagnosis of the existence of a growth, of course rests upon examination with the laryngeal mirror. Even with this aid a small growth may be, and frequently is, overlooked, because of its situation upon the under surface of one of the cords, or from being hidden from all but the most careful scrutiny in the anterior commissure. It is this class of cases, complaining of nothing but a more or less perpetual hoarseness, that is often diagnosed and treated as chronic laryngitis. Only recently the writer saw a case of a small pedunculated fibroma, attached well anteriorly to the under surface of the right vocal cord, which passed unrecognized through the hands of some of the best laryngologists of England, Canada and the United States, and was referred for treatment of his "chronic laryngitis."

The differential diagnosis between benign and malignant tumors of the larynx depends, in a general way, upon a consideration of the rapidity of growth, advanced age of the patient, involvement of the

adjacent glands, the occurrence of pain and dysphagia in malignant growths, and the opposite circumstances in benign. The presence or absence of these symptoms, however, is not an absolute guide. Within the past month a patient came for diagnosis, a man 60 years old, who had been troubled for three or four months with hoarseness—this being the only symptom. Examination showed a sessile growth on the right side of the larynx, about the size of a dime; and involvement of the glands of the neck on the same side. The patient had no pain, dysphagia, or other discomfort, and yet the tumor was undoubtedly a rapidly growing carcinoma, which had already gone beyond the possibility of operative relief.

As between papilloma and fibroma it is not always easy to distinguish. The former is likely to be multiple, soft and friable; the latter single, hard, and tough. The histological elements are frequently mixed, and again, the two forms may be met with in the same individual. While final resort to the pathologist must often be made to determine or confirm our diagnosis, nevertheless, we must depend in great measure on our own observation and experience for the determination of the character and treatment of these growths.

Prognosis. Cases have been reported, mostly in children, in which papillomata have disappeared spontaneously. This event, however, is not of sufficient frequency to make it a fact worth while considering in the prognosis or treatment, unless the growth is very small and produces no unfavorable symptoms. With modern advantages, papillomata rarely become so formidable as to endanger life. They can be removed by endolaryngeal methods, once or many times if recurrence renders it necessary. The prognosis as to life is therefore good, and the voice is rarely permanently damaged, although a degree of hoarseness may last for some time after removal of the tumor. As to permanent freedom from recurrence the outlook is not so good, many cases being on record in which in spite of thorough removal and cauterization of the base, the tumors have recurred again and again. Further, in making our prognosis we should take into consideration the means employed for removal. It is a well recognized fact that it is least dangerous to remove the mass by means of forceps or other instruments—*per vias naturales*. But, if on the other hand, this method is not consistent with thorough removal, then thyrotomy or tracheotomy or both must be resorted to, with the risk as to life and vocal impairment which such operations necessarily entail.

The question as to whether this variety of tumor tends to recur in a malignant form after and in consequence of operative interference, has received a great deal of attention. The general consensus

of opinion, I believe, is that they do not. Instances reported in which such malignant transformation has taken place must be looked upon as exceptional. The case I am about to bring before you is certainly a strong argument against it.

Treatment. The medical treatment of laryngeal papilloma I consider a waste of time. Of the many drugs which have been sprayed or injected into the larynx, alcohol and formalin seem to be the most effective. Solutions of arsenic (Fowler's or Donovan's) according to some observers, cause retrogressive changes in the growth. Mention must also be made of suprarenal extract. These medicaments may be tried while the larynx is being accustomed to the passage of instruments and in the intervals between operations. The electric cautery is useful mainly to destroy the base of these tumors after removal of the body of the growth. It is always well to look after any deviations from the normal in the naso-pharynx, since their correction, while not influencing the condition in the larynx appreciably, will yet tend toward the comfort and the well-being of the patient.

Case. The following case possesses both a clinical and an historical interest. In duration it is nearly contemporary with modern laryngology. It is also of interest as a "human document" in the discussion as to whether or not papilloma assumes a malignant character after operative interference.

Semon, Quinlan, Gibbs, Gleitsmann and others have reported cases of benign growths which have undoubtedly undergone malignant transformation. In the present instance, however, in spite of its long duration, and an unusual amount of instrumental treatment, the papilloma has suffered no essential change in its histological make-up, nor in its clinical character.

The history is taken from the lively account of the case by Dr. Louis Elsberg, who first recognized the tumor; and from a paper by Dr. Rufus P. Lincoln,⁵ under whose care the patient came some twenty years later. These papers I quote freely.

The first symptoms were noticed in June, 1862, when the patient, a young woman, then about twenty-three years old, contracted what was considered a laryngitis, with hoarseness, dryness and irritability of the throat.

A few months later she lost her voice completely. It required great effort to whisper at all audibly, and vocalization, as well as physical exercise of any description, was followed by great exhaustion and dyspnoea. The ingestion of liquids provoked spasms of coughing, and great care was necessary in drinking. She underwent all the varieties of treatment then in vogue; under regular, "half regular," and homeopathic physicians; electricity, cauterization, croton oil and many other remedies were tried without avail.

Finally, in January, 1864, Dr. Fordice Barker sent the patient to Dr. Elsberg, who was then using the laryngeal mirror as a novelty in teaching, and the true nature of the case was made apparent.

Elsberg says: "On introducing the laryngeal mirror, I immediately saw a tumor hanging down on the left side covering the posterior attachment of the vocal cords. The epiglottis was in a state of unconquerable pendence and the fauces so irritable that laryngoscopic examination could not long be endured. . . . Four months were consumed in training the parts by almost daily manipulation to secure tolerance of instruments, during which period the seat of the tumor was defined. It was of large size, passing to a con-

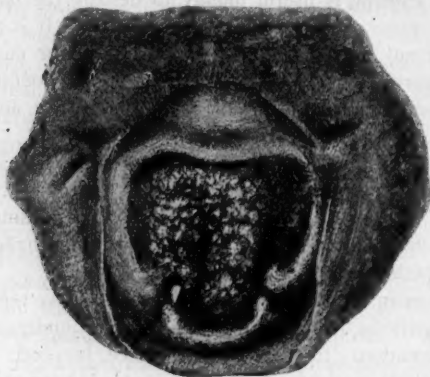


Fig. 1.—A reproduction of the original tumor as it appeared in 1864 when the patient first presented herself to Dr. Elsberg.

siderable depth below the vocal cords, and hanging with its lower portions, either free or attached, into the trachea. It was attached in front, along a line across the whole of the epiglottis, half an inch below its crest, and laterally it seemed to issue from the ventricles of Morgagni. Not alone along its peripheral line, but also centrically in every portion, except the most depending, the tumor was attached to parts below. Its consistence was semi-soft, and it had the appearance of cauliflower excrescence or irregular strawberry formation."

The appearance of the tumor at this time is shown in Fig. 1, which is from a colored lithograph made for Dr. Elsberg by two portrait artists, who examined the case on many occasions.

In the course of two weeks the tumor was removed by Dr. Elsberg, by means of scissors, cutting and polypus forceps. The tissue

taken out was in bulk equal to a "small ordinary egg." He finally cauterized the remnant with acid nitrate of mercury. As a result of the treatment respiration was unimpeded, the whisper became more distinct, and required less effort.

The voice, however, was not restored, and the growth reproduced itself, until it again threatened the patient's life, and further operative interference became imperative. Therefore, in November, 1867, Dr. Elsberg performed a laryngotomy, without tracheotomy, and freed the interior of the larynx from every vestige of the growth. A good recovery was made, and, according to the patient's statement, the voice became fairly restored in about three months.

The microscopical appearance of the tumor is of special interest. On section, "it had a more or less fibrous look, with an indefinite cell structure. It was composed of areolar, fibrous or connective



Fig. 2.—March 12, 1889. The larynx with the tumor *in situ*.

(After photographs taken by Dr. Thomas R. French.)



Fig. 3.—May 21, 1889. The same after removal of the tumor. The distorted appearance of the interior of the larynx resulting from the laryngotomy is correctly represented.

tissue, having interspersed throughout its substance numerous fusiform bodies. Approaching the surface of the tumor, the fusiform cells resembled the so-called fibro-plastic cells of Hebert. These cells seemed gradually to change their shape and become more and more globular until they resembled epithelium."

In regard to this report Lincoln remarks: "Its starting point being in the connective tissue, the tumor had a right to the title 'fibroma,' while the character of its superficial portions might entitle it to be called an 'epithelioma.'"

For over twenty years the patient remained free from any laryngeal trouble. Symptoms returned in the summer of 1888, which led her to seek examination, and another growth was discovered in October by Dr. Rufus Lincoln, whose care the patient came under. He says: "I found a tumor of about the size of a large kernel of corn growing from the posterior third of the right vocal cord.

The tumor yielded readily to the pressure of a probe, was of a light-pink color, and resembled in appearance an ordinary papilloma." A photograph of her larynx and its contents was made at this time by Dr. French of Brooklyn, which, together with a photograph after removal of the tumor, is shown in Figs. 2 and 3.

Dr. Lincoln succeeded at one sitting in evulsing the whole of the growth by means of Cuzco's laryngeal forceps, after the liberal use of cocaine. There was some immediate improvement in the voice.

From this time on, until Dr. Lincoln's death, the patient was under his care, portions of the recurring growth being removed from time to time. A pathological examination of the portion first removed by Dr. Lincoln was made by Dr. F. Ferguson of New York, who reported the growth to be a papilloma without anything un-

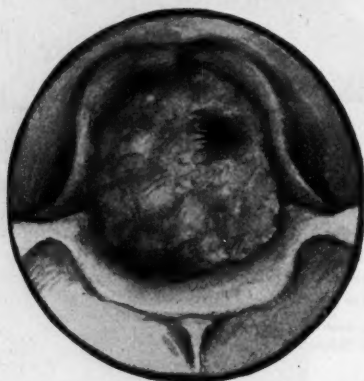


Fig. 4.—Rough sketch of the tumor and surrounding parts as they appeared in January, 1904.

usual in its structure. He says: "The epithelium follows the normal type of mucous membrane epithelium, and in its complete removal I believe this kind of tumor to be the least likely of all the epithelial varieties to return."

The patient remained free from symptoms from 1900 until a year ago—between two and three years—but presumably the tumor was growing steadily during this time. She first came to me on Jan. 14, 1904, suffering from absolute aphonia, which she had endured for the past year rather than seek a new doctor. The dyspnoea was so great that she feared to go to sleep, and the previous two nights she had spent sitting upright in a chair. There was no pain, but she had to cough much to remove the mucus which collected in her larynx. She was in a very depressed state of mind, and had seriously contemplated suicide by inhaling gas.

On examination with the laryngoscopic mirror, a very unusual picture presented itself. The whole larynx seemed to be filled up by an irregular mass covered with mucous membrane, which, in quiescence, closed in the entire glottis. On expiration a small opening appeared in the mass to the patient's left of the median line and a little posteriorly. The opening was of sufficient size to admit a thin lead pencil. The margins of this small aperture, through which respiration had to be carried on, were somewhat ragged or fimbriated, and these fimbria could readily be seen vibrating in the expiratory air current. The accompanying rough sketch, Fig. 4, which



Fig. 5.—Photo-micrograph of a section of the growth. February, 1904.

Dr. Yates has kindly made for me, shows fairly well the appearance of the tumor at this time.

On account of the marked dyspnoea and the patient's extremely nervous condition immediate action was imperative. The patient had not forgotten her early training, and it was a comparatively easy matter, after thoroughly cocainizing the parts, to remove by means of Herring's Ring Knives and Myles' papilloma forceps, several large pieces of the growth, with immediate relief to breathing. There was little hemorrhage. The tissue was soft and friable. After the first sitting a portion of the left vocal cord could be seen, but nothing of the right, because on the latter side the mass was attached by a deep base throughout the right and upper part of the larynx. On

the left side the attachment was by a thin margin only. The tissue removed was sent to Dr. E. E. Smith, a pathologist, who reported that the growth had all the characteristics of a simple papilloma. A photograph was taken of a microscopic section, and is reproduced in Fig. 5.

Dr. Smith's report is as follows: "The microscopic examination of sections of selected portions of the specimen reveals an excessive production of surface epithelium, such as to characterize the growth as a simple papilloma. There is no special indication of connective tissue hyperplasia, or of chronic inflammatory changes, and no evidence of malignancy."

The greater part of the tumor was removed at subsequent sittings, so that now only a small portion remains, which does not interfere with respiration or phonation. The voice is clear, except in damp weather, when it becomes husky. The growth increases in size when let alone, and I have small hope of securing complete cessation, since in Lincoln's hands it always returned in spite of the most thorough removal and cauterization with chromic acid crystals and galvanocautery. The patient refuses to have the operation of laryngotomy performed again.

BIBLIOGRAPHY.

- ¹ Shurly; "Diseases of the Nose and Throat."
 - ² LARYNGOSCOPE, March, 1901.
 - ³ Quinlan; Loc. Cit.
 - ⁴ Elsberg: Prize Essay "On Laryngeal Tumors," etc., Transactions of The American Medical Association, 1865.
 - ⁵ Lincoln: *N. Y. Med. Journ.*, Feb. '22, 1890.
- 54 East 34th Street.

WHAT THE LARYNGOLOGIST MAY DO FOR THE CORRECTION OF SOME OF THE MORE COMMON FORMS OF DEFECTS OF SPEECH.*

BY G. HUDSON MAKUEN, M. D., PHILADELPHIA, PA.

Professor of Defects of Speech in the Philadelphia Polyclinic and College for Graduates of Medicine, and Laryngologist to St. Mary's Hospital and the Frederick Douglass Memorial Hospital.

We all must have observed with interest the growth and expansion of our specialty. Only a short time ago our surgery was limited to the occasional avulsion of a laryngeal growth, a nasal or aural polypus, to the excision of the tonsils, the removal of nasal spurs and the cauterization of the turbinal bones. Now we are extending our domain into the sinuses adjacent to the nasal and aural cavities, we do not hesitate, when occasion arises, to go into the brain itself, and no portion of the respiratory tract is beyond the reach of our operative technique. While we have been interested in the extension of our work along these lines, however, we have neglected another field which seems to me to be quite as important; at least from a humanitarian point of view. I refer to that of disorders of speech.

The term aphasia has been used in a somewhat indefinite way, to cover many of these disorders, but its study has been limited to a comparatively narrow field, and many of the important congenital and acquired defects of speech, which have a direct causal relation to the throat, nose, ear and adjacent neuro-muscular structures, either have been neglected entirely or relegated to less scientific investigators. There are many reasons why this state of affairs should not continue to exist. One of them is, (and I mention it first because I consider it of great importance,) that the professional man should do all in his power to suppress quackery, in whatever form it may appear. He should do this in the interest of suffering humanity, as well as in his own interest. There can be no question but that the former class would be vastly better off if these pretenders in medicine were banished from the face of the earth, and we ourselves, (and we are rather too prone to consider ourselves last,) would occupy a much more dignified position, and more nearly approach a just compensation for our work.

*Read at the 10th Annual Meeting of the American Laryngological, Rhinological and Otolological Society, held in Chicago, Ill., on May 30, 1904.

A single institution for the treatment of stammering is said to have profited, to the extent of over \$200,000 in the last few years, and this institution is conducted purely upon the advertising principle. It offers absurd and impossible inducements. It guarantees a cure, before ever having seen the patient, and it has but little semblance of the scientific spirit. As I have said elsewhere, two of its victims, after remaining in the institution for some months and paying out their good money, informed me that they were not only not cured, but that they never knew any one who had been cured under its tutelage. This is only one instance of the wrong that is being done in this particular direction.

The disorders of speech to which I refer should come within the domain of the Laryngologist, Rhinologist and Otologist, for only those who are accustomed to examine these special organs of speech can comprehend, in a scientific way, the true nature and cause of the affection. Who but one skilled in the use of the laryngoscope can properly diagnosticate the various paralyses of the vocal cords and the intra-laryngeal muscles, and who but the laryngologist, therefore, can properly treat these affections. Similarly, moreover, should a spasm of these and related muscles resulting in defects of speech such as stammering, etc., receive our most careful consideration, and the public would soon begin to discover that scientific investigators are giving their attention to these important subjects, and a large number of those who now waste their time and money in a useless manner would greatly profit by our advice and assistance.

From a financial viewpoint, however, the field is not an attractive one, but this is due largely to the fact that pure quackery has a decided monopoly upon it, and this state of affairs will probably continue so long as we persist in ignoring this large and ever growing class of sufferers. I use the term sufferers advisedly, for there are probably no purely functional diseases which entail greater psycho-physical anguish than do some of these forms of defects of speech. We, who come in contact with stammerers and those having other forms of defects of speech must appreciate the fact that defects of vision are scarcely of more importance than defects of speech. Of course the former class far out number the latter, but it has been estimated that there are over 300,000 stammerers in the United States alone, and this is only a small proportion of those having some form of defective speech. Every one of these cases is a proper subject for medical supervision.

It is true that much of the treatment must consist in the employment of psycho-physical education and training, but even this to a great extent can best be done by the physician with the aid of prop-

erly trained assistants. The faculty of speech is of all the faculties of man the most complicated, for it involves extremely fine co-ordinations of widely different nerves and muscles, and questions arise in the treatment of defects of speech which only the skilled physician can accurately determine. Not all education is good, and that which is wrongly applied or contra-indicated may do positive harm, and it should be, therefore, a part of the work of the throat specialist to direct the methods of education and training of the stammerer in exactly the same way that he directs any therapeutic measure.

Whatever may be said of the nature and cause of stammering the fact that it is one of the various neuroses of the respiratory tract cannot be questioned. While it is invariably a disease of the neurotic type of individual 98% of all cases present a morbid condition of some portion of the respiratory tract. This morbid condition may be the result of intranasal disease, or it may be reflected from some distant part of the body. Farquar Matheson has said that one of the following conditions is a constant factor in all cases, namely, adenoids, enlarged turbinals and chronic rhinitis, and I am almost prepared to concur in this statement, for in upwards of 600 cases I find less than a dozen in which some form of intranasal treatment was not indicated. This fact would seem to suggest that stammering in most instances is a neurosis of nasal origin.

Whatever may be the original cause of the affection, however, we generally have a complication of conditions presenting when we get hold of our patient, chief among which is the stammering habit, more or less thoroughly established in the brain and nervous system. If we could see our patient at the inception of the trouble, and before the habit becomes fixed, then it would be fair to suppose that the removal of the cause would remove the difficulty or at least prevent its further development, but this is not the time our patients come to us. In but one of all my cases have I seen my patient sufficiently early, and that was the younger brother of a boy who was a habitual stammerer. His brother was in the initial stage. I found adenoids in both cases, accompanied by a marked catarrhal condition of the nostrils. I sent them to the hospital together, and removed the adenoids on the same day. The effect on the stammering of the older boy was nil, but the younger one ceased to stammer almost immediately.

I have also reported a case in which stammering of some years standing ceased upon the removal of adenoids, but the usual training for breaking the habit was being carried on at the time and it was to the latter that I attribute the prompt success of the treatment.

The explanation of the nasal origin of stammering is not far to seek. There are three possible theories. The first is the reflex theory, in which a peripheral nasal irritation may be transmitted directly through the sphenopalatin nerves to the medulla in which is situated the centers of co-ordination and thence reflected to the vocal and respiratory muscles. This is the more reasonable view when we consider that stammering in most cases is due to a lack of promptitude in the vocal mechanism and thus to a lack of co-ordination between this and the articulating mechanism. A second theory is one in which cerebral infection through the nostrils and pharynx is supposed to take place directly through the venous and lymph channels, resulting in an aprosexic condition which is by no means uncommon in stammerers. An illustration of this theory of the causation of stammering was given in my paper read before a recent section meeting of this society, in Pittsburg, and published in *THE LARYNGOSCOPE*, April, 1904. A third explanation of the nasal origin of stammering is found in faulty breathing, and the resultant accumulation of carbon dioxide in the cerebral circulation. Any one of these three conditions may serve to explain the inco-ordination of the vocal and respiratory muscles in stammerers, and it is quite possible that they may all combine, in some cases, to bring about the affection.

From the above observations on the probable causes of stammering the first indication as to the treatment would seem to be a thorough examination of the respiratory tract and especially of the nose and naso-pharynx, and the removal of every possible source of irritation. Organs remote from the respiratory tract, but having a nervous connection with it, should be examined with a view of detecting reflex disturbances whether of a motor, vasomotor or trophic character.

The eyes should be examined. Digestive disturbances should be corrected. Tobacco and stimulants of all kinds should be interdicted and the nervous system supported by nourishing food and plenty of sleep. A spirit of hopefulness should be engendered to take the place of the depression that dominates the minds of so many stammerers. A little mental science may be judiciously mixed in with the treatment and suggestion always plays an important part. I do not hesitate to make use of hypnotism as an adjuvant to the treatment, and I have found it of immense value in certain selected cases.

Now we come to what may be called the elocutionary training of the stammerer. The object of this training of course is to enable the patient to substitute for his faulty method of speaking a certain correct method, and, therefore, it is necessary to teach him the un-

derlying principles of speech production. He must know how to breathe, actively as well as passively. By active breathing I mean that which is used for purposes other than the support of life. Speaking is one of the things that always requires active breathing. The stammerer's breathing may be active, but it is always faulty, and the correction of this faulty breathing is the first step in the treatment.

He must be taught to use the inspiratory muscles and the expiratory muscles independently, and also to combine their action so that he may be able to conserve his breath and at the same time use just enough and no more than enough to make and sustain the vocal or basic element of speech.

Breathing and vocal exercises therefore should be given and they should be practiced for a long time. As Wyllie points out in his book on Disorders of Speech it is the vocal element that is at fault in the majority of stammerers. The voice is not forthcoming at the instant that it is required for articulation into speech. His illustration of the violin is very apt. The bow hand corresponds to the vocal mechanism and the string fingers to the articulating mechanism. If the bow hand should cease to move no amount of pressing with the string fingers would produce tone. When, however, the vocal mechanism wavers or ceases to operate the stammerer errs by trying to make up for the deficiency by pressing more strongly with the articulating mechanism, and there is an overflow of nervous energy to the parts, accompanied by the characteristic grimaces and contortions. His object of course should be to increase the efficiency and promptitude of the vocal mechanism and combine or co-ordinate its action with that of the articulating mechanism.

The articulating mechanism should also receive attention, and to this end the elementary sounds of the language should be mastered. They are 44 in number and they are represented by the letters of the alphabet. A little difficulty arises at first from the fact that the sounds of the letters in most instances do not correspond with their names. The letter "A" for instance has 5 distinct sounds, as in the words *ale*, *at*, *alms*, *all*, *ask*, and the sound of the letter "T" is the result of a slight explosion of breath between the anterior portion of the hard palate and the tip of the tongue, while the sound is represented by the two letters "t" and "e." In this way all the elementary sounds of the language should be studied and practiced so that they may be given smoothly, easily and promptly. The elementary sounds have been arranged in order by various physicists, and formed into a table to which has been given the name "The Physiologic

Alphabet."* Having learned this alphabet the next step for the stammerer is to study its application to words as they occur in speech and language.

An analysis of words will show that they are composed of a combination of two or more of the elementary sounds in The Physiologic Alphabet, and the articulation of words means simply the union of two or more of these sounds arranged in their proper sequence. Words of more than one syllable should be still further divided. A syllable is a combination of elementary sounds which may be given with a single respiratory impulse. All good speakers syllabicate, or speak in a series of separate respiratory impulses. The stammerer should be taught to emphasize this syllabication, or to give to each syllable additional time and force. This is for the purpose of acquiring conscious voluntary control over the vocal and respiratory muscles. Moreover, in the syllabication of words, as Alexander Graham Bell has pointed out, the utterance of each syllable should proceed, as far as possible, from the closed to the open position of the organs of articulation. For illustration take the word syllabicate. Instead of pronouncing it syll-ab-ic-ate the physiologic pronunciation of it would be sy-lla-bi-cate.

This is an important point to the stammerer because it has been found to be the normal and physiologic method of articulation, and, therefore, the simplest of execution. Considerable practice should be given first in writing and then in speaking syllabically, and the patient should be encouraged, even to think in syllables, for it must be born in mind that in many cases the stammerer is addicted to faulty cerebration as well as to faulty vocalization and articulation. In the correction of other forms of defects of speech similar methods should be followed with special attention paid to the particular defect, whatever it may be. The limits of this paper of course preclude the possibility of taking up each one separately.

* For Author's alphabet see "The Diagnosis and Treatment of Some Functional Forms of Defective Speech." Philadelphia Medical Journal, February 2, 1901.

BRONCHOLITHIASIS, WITH REPORT OF A CASE.*

BY D. BRADEN KYLE, M. D., PHILADELPHIA, PA.

To be thought worthy of more than passing interest, custom seems to have decreed that a pathologic condition must belong to one of two extremes; either it must occur with alarming frequency, or else be extremely rare.

While broncholithiasis comes under the latter class, if we are to judge by the number of cases reported, the condition has been observed by many clinicians, and is briefly referred to in a few textbooks, yet the opinions regarding the etiology and pathology of the condition are conflicting and inconclusive and in none of the few cases that I find recorded was the diagnosis of broncholith made till the concretion was expectorated; in fact these calcareous formations are occasionally found post-mortem, never having caused any symptoms during the life of the patient. On the other hand, however, the majority of cases have shown prominent symptoms, which, prior to the expectoration of the stone, were attributed to tubercular infection, asthma, etc.; most common among these are pains, of an indefinite type and varying in intensity from a feeling of uneasiness or pressure about the chest to a distinct soreness in a certain spot, and even sharp and lancinating in character may be felt during forcible inspiration and paroxysms of coughing. Some have described the pain as most severe at time of expulsion of the stone. Cough may occur only at long intervals and come on in paroxysms, or it may continue more or less regularly, simulating an ordinary chronic bronchitis. Dyspnea is present in some cases, particularly during attacks, asthmatic in character, though in others entirely absent. Hemoptysis, while rare, occurs in some cases and may lead to an erroneous diagnosis of tuberculosis.

And yet after all the one pathognomonic symptom, and the only one on which a positive diagnosis can be made, is the expulsion of one or more stones. The greater number of cases reported expectorated a single stone, though Poulalion, who probably has carried out more extensive observations on the subject than anyone else, records the case of a man who coughed up about one hundred.

In regard to the origin of these concretions many theories are advanced. In Nothnagel's *Pratice of Medicine* we find this statement: "Parts of the bronchi themselves, of the lungs, or of the pleuræ,

*Read before the American Laryngological Association, Atlantic City, N. J., June 4, 1904.

may calcify, and after being cast off get into the bronchi; even mucus after lying for some time in a cavity may be changed into a calcareous stone." Osler mentions broncholithis only under Chronic Ulcerative Phthisis, and says: "Fibroid changes gradually produce a sclerosis of the affected area, within which may be a uniform, firm, cheesy substance in which lime salts are often deposited. It is only when complete calcification has occurred that we can really speak of healing. Subsequently in ulcerative processes these calcareous bodies may be expectorated."

Hektoen-Riesman (Amer. Text-book of Pathology) observe: "Bronchial calculi occasionally occur from the calcareous infiltration of retained material—inspissated inflammatory deposits, etc.—and from incrustation of accidentally inspired foreign bodies. The latter variety is rare, however, because the foreign bodies generally cause purulent inflammations."

In Stengel's Pathology we find this reference: "Bronchial concretions sometimes form by inspissation of the secretion, especially in bronchiectatic cavities. Very rarely cartilaginous or bony masses, derived by outgrowth and later separation from the bronchial cartilages, are observed."

While broncholiths have likely been observed most frequently in tubercular subjects, they do occur in the nontubercular, who after the expulsion of the stones usually become entirely well and free from any pulmonary or bronchial irritation.

Mager (Wien. Klin. Woch., March 17, 1898), records the case of a woman, 28, who had had pneumonia in early childhood. Shortly before the time reported, she had paroxysmal attacks of coughing, and often expectorated lung stones, which varied in size from 0.5 to 1 cm., and were composed of calcium and magnesium phosphate, with a little calcium carbonate and organic matter. He suggested that the case seemed to be one of primary broncholithiasis, since it was preceded by no recent disease, excepting slight bronchitis and the patient did not live nor work in a dusty atmosphere. This case was similar to the one which I shall here report.

The patient, a woman, aged 38, with negative family history, had always been in perfect health till about five years ago, when there developed a hacking cough, with which there was associated a sensitive spot in the left side of the chest, in the second intercostal space, slightly to the left of the parasternal line. The cough gradually increased, and while at times the paroxysms would come on with great severity, during which the pain became lancinating in character causing the patient to press her hands to the chest over

the sore spot, yet at other times it would almost subside, though never free from a slight cough and soreness. Only indistinct dry rales were heard. Dyspnea was not marked except during the hard fits of coughing, and no blood was expectorated at any time.

She had been under the care of several physicians, and had taken medicine almost continuously. I myself when she came under my care about a year ago employed various remedial agents, changed the reaction of the secretions, but all to be followed by the same futile results, except when powerful sedatives were used, and even these only succeeded in decreasing the more aggravated symptoms for a time.

The sputum, always scant, was examined on several occasions for tubercle bacilli, with negative results.

Thus the symptoms continued without any absolute intermission till one day in February of this year, in a violent paroxysm of coughing a hard, irregularly formed, oblong body about .5x.8 cm., in size and bony in appearance was expelled. The surface was uneven with four small crests and one deep excavation. The analysis showed its composition to be calcium and magnesium phosphate, combined with a small quantity of calcium carbonate and organic matter, which are the most usual elements found in bronchial concretions.

After the expulsion of the stone the patient began immediately to improve, the soreness in the chest rapidly subsided, the cough ceased, and today she is perfectly well.

1517 Walnut Street.

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**ADENO-CARCINOMA OCCUPYING ALL OF THE SINUSES,
NOSE AND ORBITS, WITH THE PRESENTATION
OF THE PATHOLOGICAL SPECIMEN.***

BY WILLIAM H. DUDLEY, M. D., EASTON, PA.

Ophthalmic and Aural Surgeon, Easton Hospital, Easton, Pa.

In presenting the history of this case, it is not my purpose to enter into a discussion of this somewhat extensive subject, except so far as it pertains to this somewhat unusual case.

The patient, John Crissman, aged 61, came to the Easton Hospital Dispensary, about the 1st of February, 1901. The patient was a bachelor, denied specific disease, and had always been healthy, ex-



No. 1.

No. 1 A.

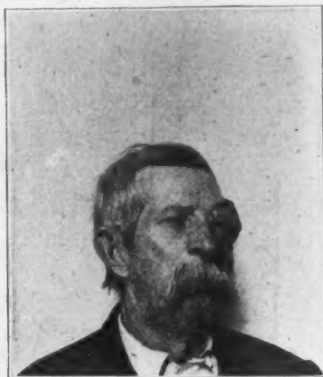
cept some trouble with the naso pharynx, from which he stated he had been relieved of polypi on several occasions within the past few years.

At this time he complained of swelling of the left side of the face, and a moderate amount of exophthalmus and pain. Empyæmia of the antrum was suspected, though the cause of the proptosis was not so clear. Through the socket of a previously extracted bicuspid tooth, an opening was made into the antrum, which was found to be filled with foul-smelling muco purulent material, the emptying of which gave considerable relief. This was irrigated daily with a solution of formalin, and a month later the discharge was small, the exophthalmus somewhat less, and the patient much more comfortable.

* Read at the Tenth Annual Meeting of the American Laryngological, Rhinological and Otological Society, held at Chicago, May 30, 31, June 1, 1904.

May 4th, 1901—about one month later—the exophthalmus was increased, cornea three-fourths of an inch in front of orbital ridge; the optic disc appeared hazy and vessels large and tortuous and the pain increased. The nasal chambers were somewhat occluded by polypoid masses, sections of which up to this time the microscope showed to be simple adenoma.

The patient was now advised that he had a growth behind the eye which should be removed; he consented, and a time was set for the operation, but he did not appear until about four weeks later, when he returned with the condition as shown in photograph numbers 1 and 1-A, with pain much increased, and now desired operation.



No. 2.

At this time the optic disc was still more swollen, vessels more tortuous, tension and field normal, vision 18-200, the vitreous was somewhat foggy, and the details of the fundus made out with some difficulty. The cornea was now about three-fourths of an inch in front of the orbital margin, and one-half inch to the temporal side of the outer angle of the orbit. A tumor could now be felt at the inner orbital angle, rather firm in consistence, smooth in outline, one-half inch in diameter laterally and seven-eighths of an inch vertically.

On the 10th of June, 1901, under ether, the orbit was opened by a curved incision running from a point slightly above the inner canthus nearly to the supra orbital notch. This exposed a mass of thick mucilaginous material, which when pulled out by forceps ex-

tended into long stringy shreds. With the finger in the orbit, a communication with the nasal chamber was felt, easily admitting the end of the finger, and feeling downwards, the finger freely entered the maxillary antrum. The cavity was cleaned out as well as possible and packed with gauze.

The operation was greatly embarrassed from the beginning in consequence of patient's inability to breathe through the nose, and the strangling caused by blood entering the larynx.

Very little general disturbance followed the operation, the orbit appeared to be filling up slowly, and after two weeks he was discharged to be treated as an out patient.



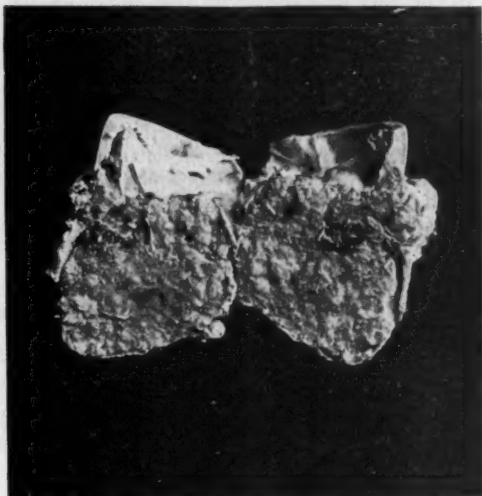
No. 3.

For the next five months he was dressed daily, and in order to render him fairly comfortable, it was frequently necessary to remove masses of neoplasm, either from the nasal passages or pharynx, but this was done only as often as circumstances demanded to keep him in a fair degree of comfort.

At this time there was considerable prominence of the left cheek, and the exophthalmus was nearly as great as before the operation.

On the 21st of December, 1901, the exophthalmus had increased considerably, and the consequent stretching of the optic nerve was great. Yet his vision by a rough test appeared about normal. Photo No. 2 shows his appearance at this time.

In February, 1902, the swelling of the tissues about the right eye began, and the tumefaction of the left side of the face was increasing. Up to this time he complained of but little pain, though now complains at times, and the X-Ray was made use of to relieve this; beginning with short spark gap of $2\frac{1}{2}$ inches, distance 18 inches—time eight minutes. The spark gap was gradually increased to seven



No. 4.

inches, which was followed by relief from pain and a decided reduction of the swelling, all of which was much appreciated by the patient. An inspection of the mouth now showed a decided sagging of the roof from pressure, and upon palpation very little could be felt of the hard parts of the bony arch.

December 1st, 1902, record states since last date (Dec., 1901), disease progressing slowly; now has openings into both antra; roof of mouth still more depressed, vision of left eye failing; disc white, general strength much less and unable to come to hospital for dressing.

January 1st, 1903, the face of the patient fast losing the semblance of former shape; the walls of the antra seem to be absorbing, or absorbed in all directions. Two weeks later (January 15th, 1903,) both sides of face enormously swollen; left eye proptosed and getting a dessicating ulcer from exposure; patient drowsy and sleeps a large portion of the time; takes nourishment fairly well and is otherwise fairly comfortable; has very little pain. Photograph No. 3 shows appearance at this time.

In the above condition he continued to live for nearly two months, or till March 18th, 1903, when he died sitting in his chair, while apparently asleep.

A necropsy was performed some ten hours after death by Dr. Adam L. Kotz and the writer, which resulted in the removal of the face and that part of the skull anterior to the auditory canal. An inspection of the part removed shows that, while the mass of the neoplasm in several places encroached upon the cranial cavity, it will be seen that the dura was intact throughout, though adherent to the tumor wherever it was in contact with it.

The case is somewhat remarkable in several particulars. First that the patient should live long enough to allow this extensive involvement of the structures and cavities of the face; and again, although the pressure must have been great upon the various branches of the trigeminal nerve, the patient complained so little of pain, that it is doubtful if he ever took a whole grain of morphia during his illness.

It may be noted that the patient was under observation something over two years; and that he continued to live for at least four or five months after all of the cavities of his head, with the exception of the cranial, had become more or less filled with the carcinomatous mass.

The earlier microscopic sections of the growth removed from the nose were ordinary polypi—true adenoma, but all specimens examined after the attempt to relieve the exophthalmus by operation were adeno-carcinoma, and nearly all of the tissues removed from time to time to facilitate breathing were examined, and found to be of this character.

As in many of the cases of this character, the exact location of the origin of the tumor is uncertain; so here, it would be impossible to determine the exact location of its starting point; but I am of the opinion, that inasmuch as it appeared at about the same time in the nose and naso pharynx, that its origin may have been in either the sphenoid or ethmoid cells on the left side, and yet, there appears to be no good reason why these simple polypi may not have been of nasal origin, and after taking on the carcinomatous change, to have extended into one cavity after another until the anterior portion of the head had become one mass of adeno-carcinomatous tissue.

In examining the specimen, you will note that there is almost no bone to be felt anywhere except the sphenoid and frontal; while the neoplasm fills all the space, it is firm and resistant throughout, though at points it has a semi-gelatinous feel. Photo No. 4 shows the specimen bisected, antero-posteriorly, with the divided surfaces presenting.

THE COLLODIUM DRESSING FOR INTRA-NASAL SURGERY.*

BY CHARLES W. RICHARDSON, M. D., WASHINGTON, D. C.

The control and prevention of the annoying, and at times dangerous, hemorrhage from wound surfaces in intra-nasal surgery has more or less engrossed the attention of the rhinological surgeons. With the introduction of the supra-renal extract and its derivatives a distinct advance has been made along this line, not only in controlling hemorrhage at the time of operation but also in preventing hemorrhage after the operation. Nevertheless, there are very few surgeons who are courageous enough to allow their patients to pass from out of their immediate observation without any other safeguard than the primary use of supra-renal extract. Most operators depend upon tampons of some character, impregnated with various drugs supposed to lessen the tendency to recurrent hemorrhage. These tampons are not only uncomfortable and painful and give rise to a moderate degree of sepsis, but are painful in extraction. The wearing of the tampons also causes a more or less complete arrest of respiration through the cavity operated upon. The various devices used to prevent hemorrhage cause more or less reaction and thereby prolong the process of repair. It has always seemed desirable to me to find some non-irritating substance that could be applied to the wound surface that would through vaso-motor or mechanical means control recurrent hemorrhage and yet allow the nasal chamber to be free. While casting about for some such agent, my attention was attracted by the article by Dr. Kasper Pischal, of San Francisco, on "Collodium after Nose Operation," published in the *Archives of Otolaryngology*, Vol. XXXI, No. 5, 1902.

The method suggested by this paper for the prevention of hemorrhage after intra-nasal operations struck me as quite novel and sound in therapeutics. It seemed though to me that it was doubtful if the control could be depended upon; and the method of execution, as suggested, seemed to be cumbersome and difficult. It was some time before I hazarded an attempt to prove or disprove my objection to this method. My first trial proved quite satisfactory—that if the collodium is properly applied to the whole wounded surface it will absolutely control bleeding from the wounded surface. I believe that the method of application suggested by Dr. Pischal admits

* Presented at the Ninth Annual Meeting of the American Academy of Ophthalmology and Otolaryngology, held at Denver, August 24, 25, 26, 1904.

of improvement, but that is a question of individual preference. I have used the collodium dressing in sixty cases, spurs and partial turbinal resections and so far have had no recurrent nasal bleeding. Some patients have a little oozing for several hours after the operation, just enough to color the expectoration. The patients are decidedly more comfortable, sleep thoroughly the first night and feel quite well the second day. The wound heals more rapidly. The method which I adopt in the application of the collodium is as follows: The operative surface, after being thoroughly cocaineized and saturated with supra-renal until blanched, is operated upon. After the operation a large piece of absorbent cotton thoroughly saturated with supra-renal is applied over wounded surface and allowed to remain for about fifteen minutes. By the second application all vessels in the deep portion of the wound are brought under the control of the supra-renal. At the end of the time indicated above the supra-renal bearing pledget of cotton is removed and the wound surface, which is now also blanched, is thoroughly wiped dry with pledget of dry cotton. A cotton carrier, which has been wound with a thin layer of cotton, is now quickly dipped into the collodium and as quickly as possible painted over the wounded surface. Several applications are then made of the collodium, rapidity of action being necessary, until quite a film of collodium is formed over the wounded surface. Several blasts of air through the nasal cavity aids in the more rapid evaporation of the ether and the more thorough setting of the collodium. The method suggested by Dr. Pischal for the application of the collodium is through the medium of a dropper. I found this method quite difficult in manipulation and uncertain in reaching all the wounded surface. I have found, in verbal communication with my eastern colleagues, that scant notice seems to have been taken of Dr. Pischal's suggestion, and, as I have seen in the literature no further article upon the subject, either by Dr. Pischal or other writers on rhinology, and as the method is of such practical utility and comfort for the intra-nasal surgeon, I write these few lines to express my appreciation to him for calling it to my attention, to attest to the value of the method in controlling nasal hemorrhage after operative work, and, if possible to extend the knowledge of this treatment of intra-nasal wounds among rhinologists.

1317 Connecticut Avenue, Washington, D. C.

SOCIETY PROCEEDINGS.

THE LARYNGOLOGICAL SOCIETY OF LONDON.

Ninety-First Ordinary Meeting, June 3rd, 1904.

P. McBride, M.D., F.R.C.P., President, in the Chair.

E. FURNISS POTTER, M.D. } Secretaries.
P. DE SANTI, F.R.C.S., }

The following cases and specimens were shown:

Complete Submucous Resection of Spur and Deviation of Septum.

Shown by Dr. STCLAIR THOMSON. The patient was a gentleman aged 26 who complained of many of the symptoms of nasal obstruction. He had previously had his adenoids removed at the age of 16, and had consulted two leading laryngologists for his nasal stenosis. They had informed him, after ordering nasal douches and using the galvano-cautery, that nothing more could be done for him. His left nostril was so obstructed that he had never been able to blow it, and was therefore compelled to clear it by hawking out through his mouth. The septum was so deviated to the left side that even after the use of cocaine and adrenalin the middle turbinal remained invisible. On this deviation was a long, low horizontal spur pressing into the inferior turbinal so deeply that it was impossible to say whether there might not be an adhesion.

Submucous resection was performed. The spur was found to run far back, and the stenosis was not overcome until the vomer was reached and, in part, clipped away. The right maxillary nasal process, which was prominent, was found difficult of removal. In separating the mucous membrane from the concavity (*i. e.* on the right side) it was found so adherent that a small button-hole was made. However, when the two muco-perichondria were placed in apposition the defect in the right one was made good by the intact condition of the left, so that no button-hole now exists. Three stitches were introduced and no plugs were used. The specimen handed round shows the spur and the fragments of deviated septum. When healing was complete the fleshy septum was found to be quite plumb in the middle line; the left middle turbinal was clearly defined; and even the pharynx on the left side was visible from the front. A fair sized polypus, with some yellow pus around it now came into view. This was snared away. As the patient still complained of obstruction in the opposite (right) nostril, I had to remove the inferior hypertrophic margin of the inferior turbinal on that side.

It will now be seen that he has a very free air-way, and that this is best on the left—the formerly obstructed side. The explanation doubtless is that the inferior turbinal on that side is small from compression, while the right is still large from the compensatory hyper-

trophy it had undergone. The fleshy septum is seen to still quaver when the patient sniffs, and members can satisfy themselves with a probe that the cartilaginous and bony septum has been removed to quite far back in the nose.

Dr. PATERSON showed a guarded knife recently introduced by Professor Killian for the removal of the cartilage after the separation of the perichondrium, which considerably facilitated that part of the operation. Local anæsthesia should not be employed where practicable, as it gave a better view of the parts and shortened the proceedings. This operation is applicable not only to extreme cases but, in moderate degrees of deviation, a good result may be obtained in a comparatively short sitting under local anæsthesia. He congratulated Dr. Thomson on the excellent result in his case.

Dr. SMURTHWAITE thought that the majority of these cases could be done under local anæsthesia alone, without resorting to chloroform or ether. It reduced the time of the operation. All the cases he had done, some six in number, had been performed with the patient sitting in the consulting-room chair. He first applied a 5% sol. cocaine to produce a superficial anæsthesia, then rubbed in adrenalin, and finally injected 15 to 20 minims of a 2% eucaine β hydrochloride, which has most of the advantages of cocaine and none of its defects. After this procedure the cartilage could be removed practically painlessly, and the patient was able to leave the consulting room feeling comparatively well.

Dr. STCLAIR THOMSON, in reply said he was very pleased to see Professor Killian's instrument, which appeared to him excellently designed for removing the exposed septum, and so making the operation shorter. As it was at present, after the fatiguing work of carefully turning back the muco-perichondrium on each side a most tedious part of the process was clipping away the deviation in fragments. The plough shown by Dr. Paterson promised to curtail this period. As to local anæsthesia he would be only too pleased to persuade patients to accept it, but unfortunately he had found that many private patients under cocaine anæsthesia were disposed to faint during septum operations—not so much from the cocaine as from the mental impression produced.

Complete Submucous Resection of Large Deviation of Septum.

Shown by Dr. STCLAIR THOMSON. The patient had been prevented from coming, but the specimen of the removed septum was shown. The right nostril in this case was entirely occluded. The deviation was found to be limited to the cartilaginous septum; there was no bony spur, and consequently the operation in this case was completed in a little over an hour.

Impaired Movement of Right Vocal Cord. Chiefly Adductor, in a Professional Singer Aged Thirty-three.

Shown by Dr. STCLAIR THOMSON. The patient only complained of "catarrh," but his teacher had hazarded the opinion that there was something wrong with his larynx. His speaking voice is high pitched, but clear. The larynx is normal and the cords are clear, but

the right one is seen to be sluggish in both closing and opening. Both movements are present, but in adduction the cord never reaches the middle line. It abducts slowly, and generally does not pass beyond the mid position, but when the patient is induced to heave a deep sigh it gets completely abducted. In prolonged phonation the left arytenoid passes very slightly in front of the right one.

The patient has never had rheumatism, lues, or severe influenza. There is nothing to explain the condition in his nose, pharynx, neck, or chest. The reflexes are normal.

He thinks he has had voice trouble all his life, as he always got easily tired, but he is certain that his singing voice is, as he says, twice as big as it was ten years ago. He finds that fatigue tells on it more than anything.

Dr. HERBERT TILLEY said he had carefully examined the case, but was bound to confess he could find nothing abnormal in the patient's larynx. Both cords seemed to possess full power of adduction.

Sir FELIX SEMON said that he confessed he could not see any paresis of the right vocal cord.

Dr. FURNESS POTTER said that he had twice examined this case very carefully, and he failed to detect any impairment of mobility in the right cord. On phonation both cords appeared to him to come into perfect apposition.

Dr. STCLAIR THOMSON, in reply, said that though no one had risen to support his views, several members who had examined the patient agreed that there was a flagging of the right cord. He had seen the patient many times, and at first he himself had failed to detect this difference, which accounted for the patient's occasional hoarseness and voice fatigue. It was slight, but he still held that there was a difference between the adduction of the cords. He did not for a moment suggest that this was due to any nerve lesion, but simply to some impairment with the mobility of the arytenoid joint.

Sequel to Case of Pemphigus of Throat (Shown December 4th, 1903).

Mr. CRESSWELL BABER said that, thanks to Mr. George C. Searle, of Brixham, into whose care the patient passed, he was able to give some details of the subsequent course of the case.

About the middle of January bullæ of various sizes broke out on the skin. They appeared first at the lower part of the abdomen, and afterwards covered the whole integument more or less except the face. When the bullæ burst they left sores like large burns. The throat affection, which, at the onset of the pemphigus on the skin, seemed to improve subsequently, progressed *pari passu* with the latter.

Arsenic was given in large doses, but appeared to do no good, the patient also had opium. He died of exhaustion on March 13th, 1904. There was no eye affection.

Sir FELIX SEMON said he was the more interested in learning that his diagnosis of pemphigus had come true in this case, as, at the time, it had been received with some incredulity on account of the complete absence of manifestations of the disease on the skin. In

his experience, however,—which, of course, was limited seeing the rarity of lesions of the mucous membrane in pemphigus—he had repeatedly found that the internal lesions preceded the cutaneous eruption. The end of Mr. Baber's patient, viz. exhaustion, was in keeping with his usual experience.

A Case of Laryngeal Ulceration and Arytæmoid Swelling.

Shown by Dr. KELSON. A man, aged 48, who had for six months suffered from loss of voice, and for the last six weeks had been almost aphonic and spitting up a large quantity of blood-stained mucus. No tubercle bacilli were to be found. No benefit from iodides.

On examination the right arytæmoid was found to be swollen and fixed, and there was a large ulcer involving the right ventricular band, ventricle, and cord.

Mr. DE SANTI considered there was but little doubt that Dr. Kelson's patient was suffering from malignant disease of the larynx. In his opinion the ultimate outlook from an operative point of view was not good.

Dr. HERBERT TILLEY thought that the appearances strongly suggested malignant ulceration. The smell of the patient's breath also possessed that curious odor which was so frequently present when epithelial structures were breaking down.

Parotid Tumor.

(The case was shown at the previous meeting and elicited a good deal of difference of opinion.)

Shown by Dr. KELSON. The tumor on removal was found to be about the size of a bantam's egg, and, closely incorporated with the parotid gland, it consisted chiefly of cysts, fibrous tissue, and gland tissue resembling the parotid, and was very vascular.

Microscopic Slide of Primary Tubercular Growth of Septum in a Female Aged Thirty-five.

Shown by Dr. SMURTHWAITE. The growth involved the anterior portion of the cartilaginous septum on the right side. The patient had suffered from nasal obstruction for about a year. The tumor was of very uneven surface, of bluish-white color, and readily removed by means of a Volkmann's spoon. The cartilage was scraped and lactic acid, 75 per cent, rubbed thoroughly over the surface, and now, three months after above treatment, there were no signs of return. As would be seen in the slide the nature of the growth was undoubtedly tubercular, for though no bacilli were found, a number of giant-cells were seen to be present.

A Thick-walled Cyst Removed from the Left Nostril of a Patient (Male) Aged Sixty-four.

Shown by THE PRESIDENT. On inspection a real globular mass was seen filling the nostril anteriorly. The growth looked and felt firmer than a polypus. The choana was seen to be quite free. An electric cautery snare was applied and half the mass was included.

As the wire cut into the growth about two drachms of very bright mucoid material came away. On examination an empty sac was seen hanging from the anterior part of the middle meatus. This was removed in two pieces with the cautery snare.

Sir FELIX SEMON said that he had not so very rarely found in the anterior part of the nose distinctly cystic tumors, *i. e.* apparently ordinary polypi, on removal of which a good deal of sometimes thick and glairy, sometimes thin, fluid escaped; but he confessed he had never paid much attention to the occurrence, being under the belief that the ordinary cedematous fibromata occasionally contained cystic cavities.

Dr. PEGLER said he thought at first these interesting specimens might bear some analogy to his own case shown in February, 1901, but the resemblance was superficial only, and he should be more inclined to regard them as polypi undergoing cystic degeneration. The President had entrusted them to him for sections to be made and reported on by the Morbid Growths Committee.

Specimen of Tumor of Palate from a Woman Aged Thirty-four (Shown at last Meeting).

Dr. DONELAN said he had removed the tumor by incision and raspatory, and found that, as suggested by Mr. Stephen Paget, it had shelled out quite easily. He had not had an opportunity of having a slide prepared, but, as some discussion had taken place as to the probable nature of the growth, perhaps the Society would think well of submitting it to the Morbid Growths Committee.

Case of Papilloma of the Larynx in a Man Aged Fifty-one, Removed in Great Part by Means of Dundas Grant's Interlaryngeal Forceps.

Shown by Dr. DUNDAS GRANT. The growth was of the size of half a green pea, situated at the middle of the right vocal cord, white in color, and slightly papillated on the surface; it appeared to rise both from the upper surface and the edge of the cord; there was no impairment of mobility. The patient stated that a growth in his larynx had been removed at the Central London Throat and Ear Hospital (he thinks by Dr. Grant) about 20 years ago; it returned some years later and was removed elsewhere, and his voice remained fairly satisfactory till four months ago. Dr. Grant has removed a considerable portion of it by means of his forceps; it was submitted to microscopical examination, and the structure was found to be fibro-papillomatous. The greater part of the remainder was removed yesterday in the same way, and it is proposed to treat any remnants that are not accessible to forceps by means of the galvano-cautery.

Case of Nodule on Right Vocal Cord in a Male Comic Vocalist, with Chronic Laryngitis; Nodule Removed by Means of Galvano-Cautery, and Congestion Treated by Scarification and Rest of Voice.

Shown by Dr. DUNDAS GRANT. There is no appearance of the nodule and the right vocal cord, on which it was situated, is less

congested than the opposite one. The scarification of the left cord has produced improvement in the voice, but the cord itself still remains thickened.

The patient, aged 28, complained of hoarseness of six months' duration; the cords were both swollen and red, and there was a nodule of about the size of a pin's head on the right vocal cord at the junction of the anterior and middle thirds. He had practiced comic singing habitually, without having had any training in music or voice production, and had a history of specific infection five years previously. He was ordered in the first instance to rest his voice, give up smoking, and to take a mixture of biniodide of mercury, but at the end of a week this had not caused the slight improvement. The nodule on the right cord was then touched with the galvano-cautery, and the left cord was scarified by means of Herring's knife; when seen again five days later the nodule had disappeared, the scarifications were repeated, and the voice was greatly improved.

Case of Paralysis of the Right Half of Palate, or Right Vocal Cord, and Right Half of Pharynx in a Girl Aged Twenty.

Shown by Dr. DUNDAS GRANT. During phonation the left posterior pillar approaches the middle line, as also does the lateral band; the right half of the pharynx appears to be drawn to the right; in reality it is probably pushed in that direction by the muscles of the opposite side. The patient complained of choking, hawking, and discomfort in her throat of five weeks' duration, attributed to a "cold." The knee-jerks are active—almost exaggerated. There is no evidence of disease at the right apex of the lung, and presumably it is a lesion high up in the trunk or nucleus of the vagus.

The exhibitor would be glad to have the opinions of the members.

Dr. HERBERT TILLEY thought it would be well if Dr. Grant would have the patient examined by an expert neurologist, who might be able to give the Society definite information as to the site and nature of the lesion. He reminded the Society of a case, which he had shown there, presenting somewhat similar lesions, in addition to others which indicated "syringomyelia."

Dr. DUNDAS GRANT asked specially for opinions with regard to the singular movements of the pharynx, inasmuch as the right half appeared to be vigorously contracting while in reality paralyzed. He had not previously seen this feature so pronounced.

In reply to Dr. Tilley he thought the onset was too acute for it to be dependent on syringomyelia, and he hazarded a diagnosis of acute poliomyelitis of the bulb affecting the vago accessory nucleus.

A Case of Obscure Ulceration of the Left Vocal Cord of Nearly a Year and a Half's Standing in a Gentleman Aged About Sixty (the Patient was Shown at the December Meeting, 1903), Which has Since Spontaneously Disappeared.

Shown by Sir FELIX SEMON. The case was shown as an extremely obscure one at the December meeting, 1903, when a full description was given, and when the discussion, in which Mr. Charters Symonds, Dr. Scanes Spicer, Dr. Herbert Tilley, Dr. Beale, and Dr.

Law took part revealed considerable differences of opinion. Since then the patient, after an attack of influenza, was extremely ill, and for a considerable time his life was despaired of. He was seen again after an interval of several months at the beginning of May, when it was found that the chronic and troublesome ulceration, which had existed for so long a time, had spontaneously and completely disappeared, and that at present there was only slight congestion and relaxation of the left vocal cord. This pleasing fact, of course, renders the question as to the nature of this chronic ulceration more obscure than ever.

Specimen of Case of Papilliferous Columnar-Celled Carcinoma of the Nose in a Young Man Aged Twenty-four.

Shown by Sir FELIX SEMON. The patient was sent to me by Mr. J. C. Craig, F. R. C. S., of Belfast, on March 2nd, 1904, with the following history:

About ten months ago the patient had a single and fairly profuse attack of epistaxis from the left nostril. In September of that year he began to suffer from watery discharge from the left nostril, which steadily got worse and became rather offensive. Mr. Craig saw him first in November, 1903, when he found the whole region of the middle meatus on the left side occupied by a gray cauliflower-like growth, which came away without effort in the snare, and without hemorrhage. The discharge from the nose was, at that time, very offensive, but scarcely at all colored. A portion of the growth was examined by a pathologist with the result that certain tendencies to malignancy were admitted, but without the disease being called cancerous. Mr. Craig, by December 13th, had removed nearly all the growth intra-nasally, and found that it was apparently springing from the septum high up underneath the cribriform plate. After thorough removal of the growth its base was freely curetted and 50 per cent of lactic acid solution firmly rubbed into the remaining surface. On December 21st the growth was apparently quite removed. On January 5th another application of the curette brought away a few minute threads of granulation tissue. On February 4th there was some suspicion of recurrence. Mr. Craig curetted freely, and submitted two of the scrapings to a pathologist, who pronounced one of them to be purely granulation tissue, whilst the other showed the same structures as the original growth. Another specimen was at the same time examined by the pathologist to University College Hospital, and pronounced carcinomatous. Under these circumstances Mr. Craig wished the patient to have my opinion.

On March 2nd, when I examined him first, I only saw, high up on the septum on the left side, a granulating surface with rather irregular ragged walls. The bottom of this surface looked partly grayish, partly suffused with blood. There was, however, no definite evidence of a new growth. Seeing that the patient had been curetted only a few days previously hardly any other condition of things could be expected. Posterior rhinoscopy showed no abnormal conditions, and there was no enlargement of glands anywhere in the neck or under the chin.

When I saw the patient a week later (March 9th), I found a distinct recurrence of the growth in its upper parts, a warty, reddish, mammillated mass having grown up since I examined the patient a week previously. Meanwhile Mr. Shattock had examined the specimens of the original growth, sent from Belfast, and pronounced the growth without hesitation to be a papilliferous columnar-celled carcinoma. Under these circumstances there could be no doubt that the patient ought to be without delay subjected to a radical operation from within, and the patient and his family having consented Sir Victor Horsley performed a very radical operation on March 14th. He first ligatured the external carotid, then, after plugging the nasopharyngeal cavity, did a Rouge's operation, and removed the greater part of the bony septum, the left middle turbinate, and the ethmoid on the left side up to the cribriform plate. The operation lasted nearly two hours, but so far as could be judged succeeded in completely removing the growth with an healthy area round it. The patient made an uninterrupted recovery, and left about three weeks afterwards for Belfast. So far, according to information I have received, there has been no recurrence.

The case is put on record (1) on account of the general rarity of malignant disease in the nose; (2) because this particular form of cancer (papilliferous columnar-celled carcinoma) is very rarely, indeed, found in the nose; and (3) on account of the uncommonly young age of the patient (24).

**Further History (with Drawing) of the Patient Suffering from
Obscure Ulceration of the Left Tonsil, Twice Shown (at the
November Meeting, 1902, and the January Meeting, 1903).**

It will be remembered that this patient, a clergyman, aged about 70, was shown at the November meeting, 1902, when there was ulceration of the left tonsil with acute and considerable enlargement of numerous cervical lymphatic glands on both sides. The question was whether the disease was malignant. Mr. Shattock at that time considered the disease as inflammatory, whilst according to clinical observation its nature was doubtful. In the discussion Mr. de Santi expressed a very decided opinion to the effect that in spite of Mr. Shattock's opinion the affection was of a malignant nature.

When shown two months afterwards at the January meeting, 1903, the ulceration of the left tonsil had quite disappeared, and the tonsil had become much smaller, whilst the enlargement of the cervical lymphatic glands on both sides of the neck had also considerably diminished. In all probability a septic affection had been at work.

After the last demonstration, according to the description given by Dr. Bolton Thomson, the throat became perfectly normal, and remained so for about six weeks or more. He then got an acute inflammation of the right side, very similar in character to the initial inflammation, with which his former trouble commenced, viz. a peritonsillitis (the tonsil itself being but little affected), some glandular swelling, but no ulceration. With oxygen, a spray of chinisol, belladonna to the glands, and iodide of potassium internally, this

subsided, but never quite disappeared. All pain and inconvenience ceased, but a swelling about as big as a split pea remained at the upper part of the right anterior pillar making it bulge forward.

About May, 1903, acute inflammation with tendency to cedema appeared again in the right side, and on the 11th of June, when I saw the patient again, I was fully convinced that the affection was of a septic character; there was follicular tonsillitis in the right tonsil from which a zone of cedematous infiltration affecting particularly the uvula had started. The uvula itself was considerably enlarged, congested, and semi-transparent, and on the anterior right arch of the palate there was a similar condition. There was no extension into the naso-pharyngeal or into the laryngeal region.

The drainage of the patient's house having been repeatedly examined by experts and found perfectly normal the patient was warned not to visit septic cases in his district, and quinine internally, oxygen inhalations, cold water applications round the neck, bland nutritious diet, and plenty of fresh air, together with applications of peroxide of hydrogen and solution of sulphate of zinc.

In October, 1903, I saw the patient again. He then had a considerably enlarged gland in his left groin, near which there were several smaller ones. Fears that the process in spite of the previous negative evidence of the microscopist might be of a sarcomatous or possibly lympho-sarcomatous character were revived, and arsenic was given in gradually increasing doses.

On December 13th, Dr. Bolton Tomson wrote that, after first improving under the arsenic, he got cold, that his temperature went up to 101° , that his throat got much worse, that he had acute and most exhausting diarrhoea, violent abdominal pains, and flatulent distention, that the glands in his groin doubled in size, that his throat was much more inflamed on the right side, and covered with "a membrane like one of the mimic diphtheria membranes that one examines to make sure, but knows full well it is not diphtheria," that the glands on the right side of the neck were also slightly enlarged, but not very much. The membranous condition was followed by an ulcerative process, which again improved, and Dr. Tomson thought that the throat was going to get quite well, but about twelve days afterwards the patient caught another cold, and again the throat flared up, getting since then steadily worse. At the date of the letter the condition was as follows—"The area affected is confined entirely to the right tonsil and immediate neighborhood. On examination one sees a large pocket between the anterior and posterior pillar of the fauces, always filled with saliva and muco-purulent discharge. On syringing this out a small piece of tonsil is seen, irregular, and with a grayish appearance. This covers the anterior aspect of the posterior pillar, and the front of the anterior pillar for a sharply-defined crescentic area of a quarter of an inch. Outside this there is a zone of redness also sharply defined, which takes in the adjacent half of the uvula and salpingo-pharyngeal fold." The patient at that time suffered a good deal from sharp lancinating pains when he used his jaw in eating and talking, and could not sleep at a stretch, as saliva or discharge constantly accumulated in the pocket in his

right tonsil, and had to be washed out. Histemperature was about 98.4° in the morning and about 100° at night. The blood was examined with perfectly negative results.

On January 10th Dr. Tomson wrote as follows: "You asked me to write you as to Mr. H—'s progress. I enclose an illustration taken about a week ago. At the upper half of the right anterior pillar you will see the remains of the pseudo-membrane I described in my last letter. Outside this is a sharply-defined zone of redness terminating in some ulceration at the base of the uvula. The disease has destroyed the whole of the soft tissue in the tonsillar fossa, fat, connective tissue, sheath of muscle. The external margin of the posterior pillar is well defined. The coloring is intended to indicate the excavation that had occurred. A small piece of tonsil that is left is seen projecting out from the cavity. The whole space around the bit of tonsil was filled with slough which has completely cleared. I gave morphia in addition to the other remedies as you suggested, and with great benefit. The more useful antiseptics I found to be frequent irrigation with weak carbolic before and after food, and keeping the surfaces covered with iodoform in the intervals. I have had to contend against a severe chronic enteritis at the same time, as you know, and although both diseases appear to be arrested, the patient is dying simply from failing strength and natural decay. (He is 74) Every organ seems to be ceasing to functionate."

In reply to this I at once wrote to Dr. Tomson, begging him to insist when the end came on making a post-mortem examination. Unfortunately, however, the patient died on the same day when Dr. Tomson's letter was sent, and when after arrival of my letter he went to see whether a post-mortem examination could be obtained he found the body had already been taken to the church, and that the performance of a post-mortem examination was out of the question.

Thus, in this most interesting and obscure case again, as in many others, we have been deprived by the impossibility of getting an autopsy of the only chance of ultimately finding out what was the cause of the most unusual and varying disease from which the patient suffered. I shall be glad to hear the opinions of the Society as to the nature of the disease, after this further report, which I have curtailed as much as possible in order not to encroach too much upon the time of the Society. The differential diagnosis would of course seem to lie between a chronic septicæmia with occasional exacerbations, and between new growth of the nature of lympho-sarcoma. It deserves to be mentioned expressly that the left tonsil, which was the original seat of the disease when the patient was shown in November, 1902, remained free from disease, after having healed up until the end of the patient's life.

Removal of the Uncommon Laryngeal Tumour. Described in the "Proceedings" of the Society on March 9th, 1898.

Shown by Sir FELIX SEMON. The tumor, which was found to exist in 1888 by Dr. Major, of Montreal, in the larynx and neck of a lady, aged at that time 30, and which has been fully described in the Society's 'Proceedings,' gave no rise to discomfort until recently,

and the patient, who, in spite of having worn a tracheotomy tube for 12 years, felt perfectly comfortable; refused further operative interference. Quite recently, however, symptoms pointing to irritation of the sympathetic, such as very troublesome salivation and epiphora, made their appearance, the internal tumor was found to have considerably increased in size since I last saw the patient about two years ago, and she at last consented to operation. Meanwhile I had read in Professor Paul von Bruns, chapter on "Malformations, Injuries, and Diseases of the Larynx and Trachea" in the 'Handbuch der Praktischen Chirurgie' (pp. 104 and 105), a case apparently quite analogous to this one, and described by him as a "unicum." In this case Professor von Bruns cut down upon the external tumor, dissected it out from its vicinity, followed a thin filiform pedicle, which extended from the external tumor underneath the lower edge of the thyroid cartilage into the interior of the larynx, where it expanded in a manner quite similar to my own case, and succeeded in shelling it out without opening the interior of the larynx at all. I followed exactly the same plan with exactly the same result, except that the tumor, being very friable, broke during its removal into three parts, which were removed without difficulty. In this case, which consists of a number of tough yellow lobes and lobules, and, in its entirety, is as big as a medium-sized plum, the tumor entered the larynx not below but above the thyroid cartilage, between it and the hyoid bone. The operation was performed this morning with the assistance of Mr. Stabb, Mr. Tyrrell giving the chloroform, and in the presence of Dr. McBride, Dr. Law, and Mr. Waggett. The mucous membrane forming the internal lateral wall of the big cavity, which remained behind after removal of the tumor, was stitched to the adjoining tissues, as, during inspiration, it was strongly drawn inwards and, as it was feared that it might thus cause fresh obstruction. The wound was then closed in its entire length, only a small drainage-tube being left in its deepest part. After completion of this operation the tracheotomy tube, which the patient had worn so many years, was removed; the wall of the tracheal opening, which was lined with skin for a considerable distance inwards, was pared off entirely to a circular incision round the tracheal opening, and subsequently dissected, the funnel thereby resulting being temporarily closed by clamp forceps. Finally, preliminary horsehair ligatures were passed through the openings of the fresh wound, but not closed. The clamp forceps will be left in until tomorrow to ensure in the event of dyspnoea arising the re-introduction of the cannula. Should, as may be justly hoped, no difficulty occur the forceps will be removed tomorrow, and the wound closed in its entirety.

The case being the second on record in the whole laryngological literature a full description will be given when the healing has been completed, and the tumor been microscopically examined.

Removal of a Foreign Body from the Trachea by Direct Laryngo-Tracheoscopy.

Shown by Dr. D. R. PATERSON. A girl, æt. 8, came to the outpatient department with the laryngeal obstruction of a week's duration. She was not hoarse, and with the laryngeal mirror a glimpse

was obtained of a body situated a short distance below the glottis. The difficulty in breathing was said to have come on after teeth extraction, and a radiograph taken strongly suggested a broken tooth as the cause. After admission the breathing suddenly became worse, and it was ascertained that the foreign body had become displaced somewhat downwards. The dyspnœa being very urgent a low tracheotomy was done. The pharynx and larynx having been co-cainized an excellent view was obtained of the body through Killian's tracheoscope, and it was extracted by means of a crocodile forceps, when it proved to be a stay eyelet covered with a calcareous incrustation. A short reference was made to a case of laryngeal papillomata in a child where direct laryngoscopy afforded a good view of the larynx and the growths were easily removed.

Mr. CRESSWELL BABER inquired as to what position the patient was examined in, and what source of illumination was employed.

In reply to Mr. Cresswell Baber, Dr. PATERSON said he used a Kirstein-Killian electric lamp, with the patient placed on the back and the head hanging over the table.

Case.

Shown by Mr. STEPHEN PAGET. The patient was a nurse, who since Christmas, 1903, had suffered from partial loss of voice. No pain, no dysphagia, no cough, no signs of phthisis. The interarytænoid space was partly obstructed by a marked thickening of the mucous membrane, which had a coarse and furrowed surface, but was no granular or ulcerated. The cords were slightly and irregularly congested. The rest of the larynx appeared to be healthy. Mr. Paget raised the question whether, in the absence of physical signs in the chest, the case ought to be regarded as one of early tubercular laryngitis.

Dr. HERBERT TILLEY thought that it must be within the experience of many present that these interarytænoid swelling often occurred in patients in whom there was no sign or suspicion of tubercle. This interarytænoid swelling was a localized form of chronic laryngitis, and due to a hyperplasia of epithelial and subepithelial tissues. When it was present signs of chronic laryngitis were often present in other parts of the larynx, and in Mr. Paget's case it would be noticed that both cords were congested and thickened. The thickening referred to seemed to arise from different causes. He (the speaker had) frequently observed it in chronic alcoholics and gouty individuals, and details were given of a case shown before the Society in which the interarytænoid swelling was so great that urgent dyspnœa was produced, and the patient was admitted to the hospital for laryngotomy, but the urgent symptoms disappeared with rest, purgation, and a low diet. A week afterwards the patient died suddenly, and at the post-mortem examination well-marked cirrhosis of the liver was found. Microscopic examination of the larynx showed the interarytænoid swelling to be a hyperplasia of the natural tissues in the situation—possibly merely a local evidence of a general fibrosis. In yet other cases nasal and naso-pharyngeal affections, especially when these gave rise to septic discharges, would produce a similar affection of the larynx. The treatment, in addition to deal-

ing with these factors by constitutional and local (nasal and nasopharyngeal) measures, should consist in the application of solid nitrate of silver to the swelling after having anaesthetized it with 20 per cent cocaine solution. In some cases preliminary curetting seemed to ensure the caustic having a more rapid and permanent effect.

Mr. WAGGETT drew special attention to the frequent presence of nasal stenosis in these cases, and to the improvement in the laryngeal condition after removal of such stenosis.

Dr. SMURTHWAITE thought the interarytænoid appearance indicated tuberculosis, though he could instance a similar case to the one mentioned by Dr. Tilley. The patient was brought into the Royal Infirmary, Newcastle-on-Tyne, late one night suffering from an acute laryngeal stenosis which had come on suddenly a few hours previous to his admission. Tracheotomy was contemplated, but the man's condition improving as the night went on the operation was not resorted to. On a thorough examination of the larynx being made in the morning a marked thickening of the lining membrane of the interarytænoid space was made out, the left cord was diffusely thickened, and a condition of pachydermia verucosa, so-called by Virchow, was present. The man was a heavy drinker. He recovered from his acute symptoms, and left the hospital with only slight huskiness of voice, though the pachydermia more or less still persists now a year later.

In reply, Mr. STEPHEN PAGET said that he would go into the case carefully, and would show the patient again at a later meeting of the Society.

A Woman Aged Sixty-three with Swelling of both Arytænoïds and Infiltration of the Epiglottis.

Shown by Mr. DE SANTI. The patient is a single woman aged 63. Her history is that she has had hoarseness, dysphagia, loss of flesh, and pain in the right ear for about two weeks; she has no cough and no difficulty in breathing. There is no history or evidence of syphilis. Examination of the larynx reveals considerable swelling of both arytænoid regions, and ulceration of the right arytænoid region. Also infiltration of the epiglottis, especially on the right side.

The case looks more of a tubercular nature than anything else, and is brought forward for diagnosis. No examination of the lungs or sputum has been made yet.

Paralysis of the Left Vocal Cord in a Man Aged Sixty-seven.

Shown by Mr. DE SANTI on May 6th. Dr. de Havilland Hall showed the skiagram of this case, which seemed to show dilatation of the transverse and descending arch of the aorta. The patient died a few days after this was taken. At the necropsy the aorta was found healthy. At the level of the bifurcation of the trachea there was malignant disease of the œsophagus and the growth had ulcerated into the trachea. The pneumogastric and recurrent nerves on the left side were involved in the growth.

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SELECTED ABSTRACTS.

On the Bacteriology of the Exudate Covering the Exposed Tissue After Tonsillotomy. The Pseudo-diphtheritic and Fusiform Bacilli—P. CORNET—*Bull. de laryngol., otol., rhinol.*, Dec. 31, 1903.

From his investigations of this subject the author offers the following conclusions:

The bacterial flora of the exudate which covers the field of operation after tonsillotomy varies according to the procedure employed, whether with the electro-cautery or with cutting instruments.

The pseudo-diphtheritic bacilli is especially frequent after tonsillotomy with the galvanic snare, finding, no doubt, in the eschar a favorable field for development.

In subjects operated on with cutting instruments, as with the forceps of Ruault, the microbe which plays the most important part is the fusiform bacillus. It is never found alone, but is associated with various other species especially the staphylococci.

The microscopic appearance of the exudate does not seem to have any relation to the microbes which are found, resembling in this the false membranes of the pharynx in general.

SCHEPPEGRELL.

Injury of the Posterior Surface of the Epiglottis—H. RUSSELL NOLAN, (SYDNEY AUSTRALASIAN MEDICAL GAZETTE,)—Feb. 20, 1904.

A gentleman of middle life was sent to Nolan because three days before he had "felt something stick sharply in his throat" while eating some fruit salad. There was a wound on the posterior surface of the epiglottis to the right of the median line and almost at the tip of the structure. The area was about the size of a threepenny piece, (size of our silver five-cent piece), and was flat, with a sharply defined border, giving the impression that the mucous membrane had been shaved off by some very sharp edge, such as a small piece of broken glass often has.

What the author draws attention to is that the wound was produced during the act of swallowing, and was situated on the posterior surface of the epiglottis. He points out that according to Professor Anderson Stuart's theory of the mechanism of the closure of the epiglottis, "the distal portion does not fold down as a lid, but is applied to the most posterior part of the back of the tongue." He remarks that if the old theory of the folding backwards of the epiglottis as a lid over the top of the larynx were correct, then it is not the posterior aspect of the epiglottis which we should have expected to see injured, but the anterior.

EATON.

The Etiology of Epithelial Pearls of the Membrana Tympani—

ERNST URBANTSCHITSCH—*Archiv. f. Ohrenheilkunde*, Feb., 1904.

Urbantschitsch performed paracentesis for acute suppuration of the middle ear in a child. After suppuration had ceased a bulging of the drum was noticed in the lower posterior quadrant. This was incised and found to be a cyst containing air, which reappeared when the incision healed. A few months thereafter a small, shining, pearl-like mass was noticed in the line of the lower incision, which grew in size. Its appearance was followed by another, and later one appeared in the line of the upper incision.

These growths consist of a membrane containing epithelial cells and detritus, and are similar pathologically to the so-called atheroma of the skin. They are situated between the membrana propria and the epithelial layer, and in the opinion of the author are due to the inclusion of epithelial cells carried into the tissue by the knife.

YANKAUER.

Some Words Regarding the Indications for Radioscopy in our Specialty—

CHEVAL—*Presse oto-laryngol. belge.*, Oct., 1903.

The radioscopy image may assist us in the diagnosis of foreign bodies in the œsophagus, the bronchial tubes, and in discovering the early stages of tuberculosis, pleurisy, pneumonia, pneumothorax, adenopathies tracho-bronchial and œsophageal diverticula. The latter may be studied more accurately by the introduction of subnitrate of bismuth. The early diagnosis of aneurisms may also be made by means of radioscopy. Radiography should not be neglected and is often more important than radioscopy.

SCHEPPEGRELL.

Rupture of the Drum Membrane Through Indirect Violence—

WILLY BÖHN—*Monatsschrift f. Ohrenheilkunde*, March, 1904.

The author, after reviewing the subject, reports three cases. The first patient was struck on the left ear. There was a hemorrhage into the left drum near the umbo. On the right side there was a linear rupture in front of the short process. There were also pain, tinnitus and loss of hearing. The second case received a blow on the left ear. There was a small perforation of the left drum below the umbo, and on the right side a scar was seen which extended from the umbo to the circumference, and a little distance along the latter. In the third case, the patient was struck by a beam of the left side of the lower jaw. Pain and deafness in the right ear followed. Examination showed a large perforation of the drum in the lower quadrant, involving one quarter of the drum. On the left side an acute otitis media developed. In this case both drum membranes had a markedly atrophic appearance, and the further course of the case showed that tuberculosis of the ear was present.

In these cases the ruptures were due to "contrecoup" just as fractures and hemorrhages occasionally occur at a point directly opposite to the seat of injury.

YANKAUER.

On the Contagiousness of Vincent's Angina—S. COSTA—
Presse med., Dec. 16, 1903.

The author had occasion to observe four cases of Vincent's Angina, the study of which has convinced him of the contagiousness of the disease. The contagion is especially marked in the early stages; the incubation varies from six to seven days. In all cases, however, the contagion is of a limited character. It may be produced directly from mouth to mouth, also by ordinary intermediary objects such as pipes, pencils, pens, etc. It is likely, however, that the contagious process may also be transmitted by particles of saliva, or of mucous thrown out during cough or conversation.

SCHEPPEGRELL.

The Removal of a Foreign Body from the Ear by Means of the Peroxide of Hydrogen—HEINRICH HALASZ—*Archiv f. Ohrenheilkunde*, Feb., 1904.

A child of four years had introduced a bean into the ear. After two weeks, suppuration had set in, and granulations had sprung up in the canal, preventing the removal of the foreign body. The granulations were cauterized with trichloracetic acid and the suppuration was treated with peroxide of hydrogen. After a few days the effervescence caused by the latter dislodged the bean, and it was easily removed.

YANKAUER.

Foreign Bodies in the Bronchial Tubes—M. MEUNIER—*Société de chirurgie*, Feb., 1904.

An interesting case is reported by Dr. Meunier, to the Société de chirurgie, of a child of three and a half years which had swallowed a carpet nail with a large head. Three days afterwards, it was attacked with fever and chills, and a bronchial pneumonia developed.

Radioscopy gave no result, but radiography indicated the presence of a foreign body in the right bronchial tube. Meunier attempted to remove it with the electro-magnet, but without success. He then practiced tracheotomy, and tried to seize the foreign body with forceps, but also without success. Radiography having shown that the forceps were too short, he changed the instrument and succeeded in removing the foreign body. The subsequent cure was rapid.

SCHEPPEGRELL.

Thiersch's Intra-auricular Skin Transplantation After Radical Operation on the Middle Ear Areas—A. POLITZER—*Wiener Klinische Wochenschrift*, March, 1904.

From six to twenty-four days after the operation a piece of epidermis, one to 2 cm. square, from the arm or thigh, is introduced into the ear upon the end of a glass tube, and blown upon the granulations in the middle ear. In one half of the cases the graft took at once; in the other cases the grafts became adherent in part only.

YANKAUER.

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